GOVERNMENT OF NORTHERN IRELAND

Fifth Annual Report

of the

Ministry of Agriculture

1925-26

Presented by Command of
His Grace the Governor of Northern Ireland

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THE GOVERNMENT OF NORTHERN IRELAND

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Government House,
Hillsborough,
Northern Ireland.
14th January, 1927.

Sir,

I have to acknowledge the receipt of your letter of 12th January forwarding the Fifth Annual General Report of the Ministry of Agriculture for Northern Ireland, 1925/6.

This Report will be duly submitted to the Governor.

I am, Sir,

Your obedient Servant,

OSCAR HENDERSON,
Lieut. Commander,
Private Secretary.

The Secretary,
Ministry of Agriculture,
Wellington Place,
Belfast.

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GOVERNMENT OF NORTHERN IRELAND

FIFTH ANNUAL REPORT
OF THE
MINISTRY OF AGRICULTURE.

To His Grace, James Albert Edward, Duke of Abercorn, K.P.,
Governor of Northern Ireland.

May it please Your Grace,

I have the honour to submit the fifth annual general Report of the Ministry of Agriculture for Northern Ireland.

The Report, which covers the Ministry's operations from the 1st October, 1925, to the 30th September, 1926, is divided as follows :—

1. Advisory Committees.
2. Finance.
3. Agricultural Loans.
4. Agricultural Education.
5. Research.
6. Special Horticultural Experiments.
7. Marketing.
8. Agricultural Schemes.
9. Agricultural Laws.
10. Flax and Potato Industries.
11. Forestry.
12. Statistics and Intelligence.
13. Administration of the Diseases of Animals Acts.
14. Surveys.

I. Advisory Committees.

Meetings of the Ministry's Advisory Committees were held as follows during the past year :—

Consultative Committee ... ... 11th May, 1926.

Advisory Committees.

Horses	...	3rd February, 1926; 30th March, 1926; 25th June, 1926.
Cattle	...	18th November, 1925; 19th March, 1926; 28th April, 1926.
Pigs	...	23rd April, 1926.
Sheep	...	23rd April, 1926; 21st May, 1926.
Marketing of Eggs	...	13th November, 1925; 23rd February, 1926; 23rd March, 1926.
Flax	...	31st March, 1926; 27th July, 1926 (Visit to Coleraine to inspect flax plots laid down by Ministry).
Potatoes	...	30th March, 1926.

The following changes in the personnel of the various Committe were made during the year :—

Marketing of Eggs.—In November, 1925, the Advisory Committee in connexion with the egg industry was reconstituted so as to provide for the more extended representation thereon of the various interests concerned with the development of the industry. In conjunction with this change consideration was also given to the question of again seeking the assistance of the carrying companies whose representatives had rendered valuable services on the former Committee, but having regard to the fact that it was unlikely that any general questions relating to carriage by public conveyance would call for attention during the year, the Ministry decided that, in preference to asking for the attendance of representatives of the companies at meetings of the Advisory Committee, it would be more suitable to approach the companies specially in any matters relating to transit which might arise.

The following is the personnel of the new Advisory Committee :—

William Allen, Esq., Messrs. William Allen and Sons, Limited, 170 Newtownards Road, Belfast.

George Chesney, Esq., Ballynafie, Portglenone, County Antrim.

S. Cochrane, Esq., Hon. Secretary, North West of Ireland Egg Shippers' Association, Bond's Hill, Londonderry.

T. Gracey, Esq., Hon. Secretary, North of Ireland Egg Merchants' Association, Messrs. Gracey Brothers, Great George's Street, Belfast.

John Harvey, Esq., President, County Down Egg Merchants' Association, Messrs. Harvey and Company, Newry Street, Banbridge, County Down.

S. Hewitt, Esq., Messrs. S. Hewitt and Sons, Edward Street, Portadown, County Armagh.

J. Johnston, Esq., Secretary, Ulster Agricultural Organisation Society, 16 Donegall Square South, Belfast.

T. M'Dowell, Esq., Secretary, Ulster Farmers' Union, 5 Royal Avenue, Belfast.

R. A. M'Elderry, Esq., Ballymoney Egg Suppliers, Limited, Ballymoney, County Antrim.

W. J. M'Guffin, Esq., J.P., Belfast Co-operative Society Limited, York Street, Belfast.

W. M'Laughlin, Esq., Scottish Co-operative Wholesale Society, Limited, Henry Street, Enniskillen, Co. Fermanagh.

P. O'Neill, Esq., J.P., Co-operative Wholesale Society, Ltd., Armagh.

James Rennix, Esq., Bleary, Lurgan, County Armagh.

J. Troughton, Esq., Liskeyborough, Woodview, Armagh.

The following changes in personnel of two of the Advisory Committees were made during the year :—

Flax.—The Ulster Agricultural Organisation Society nominated Mr. A. Thompson, Greenan House, Loughbrickland, County Down, in place of Mr. William Emerson, Lisburn.

Potatoes—The Ulster Agricultural Organisation Society nominated Mr. Harold Barbour, Strathearne, Dunmurry, in place of Mr. James Adams, 16 Donegall Square South, Belfast.

2. Finance.

Pro forma accounts for the financial year 1st April, 1925, to 31st March, 1926, are shown in the appendices, pages 112 to 121 inclusive.

The total expenditure for that year, including that incurred through county committees of agriculture, may be summarized under the following broad heads :—

Agricultural Research and Faculty of Agriculture (including Building Grant to Queen's University and other capital expenditure)	£21,022
Agricultural Education (including capital expenditure)	47,695
Live Stock Schemes	26,036
Flax and Potato Industries (including Seed Supply Schemes	13,493
Forestry (including Unemployment Relief Scheme)	5,522
Marketing of Agricultural Produce	4,299
Collection of Agricultural Statistics	3,205
Subsidies to Shows	1,773
Improvement of Dairying	1,760
Miscellaneous Agricultural Services	1,342
Ordnance and Geological Surveys	8,623
General Expenses	41,190
	£175,960

Under the heading, "Agricultural Research and Faculty of Agriculture," is included the cost of the Egg-Laying Competition, the official Seed-Testing Station and the Milk Testing Laboratory, in addition to expenditure on Research proper.

Expenditure was for the greater part defrayed from Votes of the Parliament of Northern Ireland. A contribution of £11,237 was made from local rates, being the produce of a rate of one penny in the pound levied by the several county councils for the purposes of agriculture and other rural industries in accordance with section 78 (1) of the Education Act (Northern Ireland), 1923.

A special grant of £14,176 was included in the Parliamentary Votes. This amount was the third instalment of the sum of £54,000 already approved for certain agricultural purposes as indicated in the Ministry's third report.

General Cattle Diseases Fund for Northern Ireland.—Under the Administrative Provisions Act (Northern Ireland), 1926, referred to under "Diseases of Animals Acts, 1894-1922," page of this report, there was established a new General Cattle Diseases Fund for Northern Ireland, to be accounted for by the Ministry, and to take the place of the General Cattle Diseases (Northern Ireland) Fund and the Cattle Pleuro-Pnuemonia (Northern Ireland) Account established by the Diseases of Animals Acts (Northern Ireland) Order, 1924.

The sources and purposes of the new Fund, as defined in the Act, are generally similar to those of the old Fund. The new Fund comprises two accounts, namely, the Special and the General Account, the former to be credited with all receipts and debited with all payments in respect of the diseases known as pleuro-pneumonia, foot-and-mouth disease, and swine fever, and the latter to comprise receipts and payments in connexion with all other scheduled diseases.

The income of the Fund is mainly to be derived, as heretofore, from assessments on local authorities, to be made by order of the Ministry of Home Affairs on receipt from the Ministry of Agriculture of a certificate that a further sum is required for the purposes of the Fund. The total sum is assessable on the several counties and county boroughs in proportion to the net annual value of the property therein. No single assessment may exceed a halfpenny in the pound. There are further payable to the Fund in each financial year from Parliamentary Grants (a) a sum equal to three-fourths of the amount paid from the Fund in the year in respect of compensation for cattle slaughtered under the Bovine Tuberculosis Orders, and (b) such sums (not exceeding £8,000 in any one year) as may be provided by Parliament to defray the expenses of the Ministry in relation to pleuro-pneumonia, foot-and-mouth disease and swine fever.

Recoupments to local authorities in respect of compensation and expenses under the Diseases of Animals Acts constitute the principal present charges on the Fund. The net amount of compensation paid for cattle slaughtered under the Bovine Tuberculosis Orders is recoupable in full. Of the remaining expenses of local authorities one half is recoupable.

There are chargeable to the Fund, in addition, expenses incurred by the Ministry in connexion with the slaughter of animals on account of swine fever.

Under the Transfer of Property (Council of Ireland Services) Order, 1926, made by the Joint Exchequer Board, the balance of the old Cattle Diseases (Northern Ireland) Fund, amounting to £3,844 14s 6d, was, as from 1st April, 1926, transferred to the Ministry.

Accounts of (a) receipts and payments in respect of the Fund for the half year ended 30th September, 1926, and (b) expenditure by local authorities under the Diseases of Animals Acts and re-

coupments made from the General Cattle Diseases Fund for the nine months ended 30th September, 1926, are shown in the appendices, pages 119 to 121.

3. Agricultural Loans.

(a) *Purchase of Bulls.*

No applications for loans for the purchase of premium bulls were received during the year. In three cases, however, the Ministry decided to grant subsidies to associations of farmers to enable them to purchase stock Shorthorn bulls for service in districts where a need for such animals existed. The amount of the subsidy in each case was two-thirds of the purchase price of the bull, and the parties to whom the grants were made undertook to keep the animals for five years in the districts in which they were located.

(b) *Purchase of Agricultural Machinery.*

In accordance with the terms of the scheme, particulars of which were given in the fourth annual report, one loan was granted for the purchase of a tractor. One application for a loan was refused.

(c) *Live Stock Replacement Loans.*

The short-term loans which, as intimated in the fourth annual report, were granted in 1925 to farmers to enable them to replace their losses of live stock, became repayable on 31st December, 1926. The Ministry, however, considered that to demand repayment in full by the date mentioned would leave many borrowers short of the necessary working capital, and accordingly, with the sanction of the Ministry of Finance, an extension of the period for repayment was granted in approved cases subject to certain conditions.

4. Agricultural Education.

The various features of the Ministry's system of agricultural education as outlined in the annual report for 1924-25 were in full operation in the year under review, and ample evidence was forthcoming of an increased desire on the part of the farming community to avail of the facilities for agricultural training afforded at the various schools and classes. The development which took place in connexion with the winter agricultural classes is of special interest. The instruction provided at these classes is regarded as the groundwork of the Ministry's schemes for the improvement of agriculture, and the advancement of farming methods in areas where classes have been held invariably follows as a result of the application of the scientific principles taught at these courses of instruction. Satisfactory classes were held in every county, the attendance showing a marked increase over that for the previous year, and the progress of the pupils generally being good. Twenty-four students who had taken out a course at

a winter agricultural class were successful in securing scholarships tenable at Greenmount Agricultural and Horticultural College as the result of competitive examinations held in the month of September.

There has also been an increased demand for admission to the Ministry's schools for girls, viz., the Ulster Dairy School and the North-West Agricultural School, the number of applications in the case of each school being in excess of the accommodation available. Most satisfactory results followed the extensive publicity given to the scholarships in agricultural science available in connexion with the Agricultural Faculty of The Queen's University of Belfast, twenty-eight applications in all being received for the 1926 scholarships as compared with fourteen for those offered in 1925.

As a result of the co-operation of the Ulster Farmers' Union and the Ulster Agricultural Organisation Society the various activities of the Ministry were brought prominently to the notice of members of these organizations, and in a considerable number of instances lectures were arranged at centres where branches of these bodies existed.

In addition to the ordinary staff of instructors employed under the county agricultural schemes the services, as in 1924-25, of two instructors and ten overseers were available to local authorities under the terms of the special development grant. The employment of these officers enabled information on agricultural matters to be afforded to farmers, especially in backward districts, who could not otherwise have been brought directly into touch with the Ministry's work.

In the Ministry's previous Report attention was drawn to the completion of the system of agricultural education in Northern Ireland by the establishment of an Agricultural Faculty at The Queen's University of Belfast. The establishment of this faculty necessitated the provision of suitable buildings for the housing of the faculty, and the foundation stone of the new buildings was laid on the 14th May last by the Prime Minister. This represents the culmination of the negotiations entered into between the Ministry of Finance, the Queen's University and this Ministry with the object of providing the University with the means of extending its facilities for agricultural students. The active co-operation of the faculty with the Ministry of Agriculture and the agricultural community cannot fail to lead to a material improvement in the standard of farming in Northern Ireland, and so contribute to the general prosperity of the community as a whole.

Scheme of Itinerant Instruction in Agriculture.

The following table sets out details of the duties carried out by the instructors employed under this scheme. Of the ten in-

structors the services of two were available under the special development grant, one in county Antrim and the other in county Tyrone. In the case of the latter the period of employment was for the first five months only of the year :—

County	Instructors employed	Farms visited	Lectures delivered	Attendance at lectures	No. of Field experiments carried out	No of demonstrations laid down
Antrim	2	806	6	209	45	134
Armagh	1	536	7	176	34	75
Down	2	859	7	190	19	107
Fermanagh	1	572	2	86	15	73
Londonderry	1	399	11	560	17	86
Tyrone	3	1057	23	1023	34	244
Total	10	4229	56	2244	164	719

An agricultural overseer was employed in county Antrim throughout the year and an expert in potato cultivation until 31st March, 1926. The visits paid to farms by these officers totalled 820 and 153, respectively, and in the case of the agricultural overseer 85 demonstrations were laid down.

In addition to the two agricultural instructors mentioned above ten agricultural overseers were, as in the two previous years, employed under the special development grant. The duties of these overseers included visits to farmers for the purpose of advising them on problems arising in connexion with their work and the laying down of demonstration plots under the supervision of the instructors in agriculture. The following table gives particulars as to the number of farms visited and demonstrations laid down in each county :—

County	Overseers employed	Farms visited	No. of demonstrations laid down
Antrim	1	1169	151
Armagh	1	1104	262
Down	2	1133	378
Fermanagh	2	1791	276
Londonderry	2	1076	353
Tyrone	2	1840	298
Total	10	8113	1718

The number of demonstrations as given in the two preceding tables includes demonstrations with wild white clover and phosphatic manures. Details of these demonstrations in the case of each county will be found under the section of the report dealing with improvement of pastures.

Particulars of the work assigned to agricultural instructors are set forth in scheme No. 8, a copy of which may be found at pages 18 to 20 of the appendices to the Ministry's report for 1922.

Winter Agricultural Classes.

Classes were held at twenty centres as compared with nineteen centres in 1924-25. The attendance showed a gratifying increase, the number of students enrolled in 1925-26 being 387, i.e., 99 more than in the previous year. Most valuable courses of instruction in agriculture and horticulture were given at all centres, and, in addition, instruction in veterinary hygiene was provided at the classes held in four counties.

Arrangements were made during the year for the award in future of certificates to students at winter agricultural classes whose attendance was regular and whose progress was satisfactory. One hundred and sixty-five students at the 1925-26 classes qualified for the award of these certificates.

The following table sets out in detail the class centres and the number enrolled at each centre :—

County.	Centre.	Number of Students Enrolled.
Antrim	Finvoy	18
,,	Glenarm	28
,,	Larne	18
,,	Loughguile	30
Armagh	Kilmore	10
,,	Mullabawn	18
Down	Ballygowan	15
,,	Donaghmore	14
,,	Loughinisland	12
,,	Leitrim	15
Fermanagh	Aghadrumsee	20
,,	Arney	12
Londonderry	Dungiven	30
,,	Park	30
Tyrone	Ardboe	19
,,	Drumlegagh	17
,,	Killyman	19
,,	Plumbridge	30
,,	Sixmilecross	19
,,	Trillick	13

Particulars of this scheme are given at pages 21-24 of the appendices to the Ministry's annual report for 1922.

Greenmount Agricultural and Horticultural College.

Scholarships covering board, tuition and ordinary medical attendance, tenable at this college, are offered annually for competition by each county committee of agriculture in Northern Ireland. The applicants for scholarships in connexion with the 1925-26 session were submitted to a written and oral examination with a view to ascertaining their suitability for admission to the college. As a result of the examination thirty-six students, of whom thirty-four were scholarship holders and two fee-paying students, were admitted to the session which opened on the 15th October, 1925, and terminated on the 31st July, 1926.

Of these thirty-six students, thirty took out the agricultural course and six the horticultural course.

Scholarships were awarded by the various county committees as follows :—

Antrim 12, Armagh 4, Down 8, Fermanagh 1, Londonderry 4, Tyrone 5.

Full particulars as to the courses of instruction provided at the college are given at pages 25-33 of the appendices to the Ministry's first annual report.

University Scholarships.

The examination for the award of the scholarships in agricultural science which the Ministry offers annually for competition was held in October, 1925. The scholarships are tenable in the Faculty of Agriculture of The Queen's University of Belfast, and candidates must be matriculated students of that university. As a result of the examination five scholarships, each of the value of £100 per annum, were awarded, one being provided from the Anne Hall Endowment by the Royal Dublin Society. Only four of the scholarships were taken up at the Queen's University, as the candidate awarded the Anne Hall scholarship decided to take out the course at Dublin University.

During the year there were fourteen holders of the Ministry's scholarships in training at the Queen's University, viz., four first year students, four second year students, and six third year students. Of these one student took up an appointment under the Ministry and two others failed to complete satisfactorily their year's course of studies. The scholarships in the case of the remaining students have been renewed for a further year.

In addition to the fourteen holders of the Ministry's scholarships there were two students who were holders of scholarships from the Gibson Trust Fund and three fee-paying students taking out the course in the faculty of agriculture.

Ulster Dairy School.

Four courses of instruction in poultry-keeping, butter-making, and rural domestic economy are held annually at this school, at which there is accommodation for 50 students. In view of the fact that there continues to be a keen demand for admission it is clear that the high standard of instruction provided is widely appreciated. During the period 6th October, 1925, to 24th September, 1926, 108 girls, of whom 24 had entered during the previous year, received instruction at the school.

The training of 75 pupils was concluded, 31 having been in residence for one term, 4 for two terms, 24 for three terms, and 16 for 4 or more terms.

Thirty-three girls qualified for the award of certificates and three girls who desired to qualify for the post of itinerant in-

structor in poultry-keeping and butter-making were afforded an opportunity of taking out a course of 20 weeks' duration at an approved poultry farm in Northern Ireland in order to obtain further practical experience. In addition three girls qualified for the award of creamery apprenticeships, entitling them to a free course of instruction at an approved creamery in Northern Ireland and an allowance towards the cost of maintenance.

There were no free scholarships tenable at the school available during the year owing to the fact that the Royal Dublin Society, by whom such scholarships were provided in previous years from the funds of the Anne Hall Endowment, discontinued the award of such scholarships owing to the depletion of the endowment fund. Applicants resident in counties Fermanagh and Londonderry were eligible for the award of these scholarships, but as the scholarships have not been available since October, 1925, all pupils from these counties have since that date been required to pay the usual fees, i.e., £3 3s 0d per term for the first three terms and £6 6s 0d per term for the fourth and subsequent terms.

The appended table shows the attendance of pupils at the school during the period covered by this report :—

Term.	*Attendance.*
6th October—22nd December, 1925	47
5th January—19th March, 1926	45
30th March—11th June, 1926	47
14th July—24th September, 1926	49

During the year almost six hundred members of the farming community visited the school with a view to seeing the work in progress.

North West Agricultural School.

As in the case of the Ulster Dairy School, the training provided at this school includes instruction in poultry-keeping, butter-making and rural domestic economy. There is accommodation for 24 pupils. Four courses, each of about 10½ weeks' duration, are held annually, and scholarships worth approximately £8 each are provided in connexion with each course by all county committees of agriculture in Northern Ireland for applicants resident in their respective counties.

The following table gives particulars as to the attendance of pupils at the school :—

Term.	*Attendance.*
6th October—22nd December, 1925	22
5th January—19th March, 1926	21
30th March—11th June, 1926	20
14th July—24th September, 1926	24

Particulars of the courses of instruction at the foregoing two schools will be found at pages 33-35 of the appendices to the Ministry's annual report for 1922.

Education Act (Northern Ireland) 1923.

The Agricultural and Technical Teachers' Superannuation Scheme, 1925, framed in pursuance of Section 70 of the abovementioned Act, was approved by the Lords Justices and Privy Council of Northern Ireland on the 4th February, 1926, and came into operation with effect from 1st April, 1925, in the case of agricultural teachers. Provision is further made whereby, in the case of agricultural teachers admitted to the scheme, service prior to 1st April, 1925, in any of the capacities prescribed as qualifying for admission or in such capacities as may be determined to be analogous or equivalent, shall for the purposes of the scheme be reckoned as one-third of the actual duration of such service.

The necessary arrangements for the collection and payment to the Teachers' Superannuation Fund of the prescribed contributions by the teachers and the school authorities by whom the teachers are employed were put into force by the Ministry as from the close of the June quarter of 1926, provision being made for clearing off arrears of contributions in respect of the period from 1st April, 1925, to 31st March, 1926, by the end of the financial year 1926-27.

Agricultural Experiments.

The scheme, which was in operation in each county, did not differ materially from that which was carried through in 1924-25. The main alterations will be found on pages 122 and 123 of the appendices to this report. The following table shows the number and nature of field experiments undertaken during the period under review :—

Experiments	Manurial Experiments	Variety of Seeds Experiments	Mixtures of Seeds Experiments	Residual Value Experiments	Others	Total
Potatoes	12	27	—	—	9*	48
Turnips	8	14	—	—	—	22
Mangels	—	8	—	—	—	8
Oats	5	19	—	—	6†	30
Wheat	2	6	—	—	—	8
Barley	—	—	—	—	—	—
Hay	10	9	23	—	—	42
Wild White Clover	—	—	—	6	—	6
Totals	37	83	23	6	15	164

*Potato spraying experiments.
†Rate of seeding experiment.

Horticultural Experiments.

The scheme of experiments which was carried out in 1924-25 was continued except for certain alterations, particulars of which will be found on pages 123 and 124 of the appendices to this report. The following table gives particulars of the number and nature of the experiments carried out in each county by the instructors in horticulture :—

County	Ovicidal sprays	Apple scab	American gooseberry mildew	Manuring of apple trees	Manuring of Black-currants	Acarine disease in bees	Total
Antrim	4	4	2	3	2	3	18
Armagh	1	3	3	2	2	4	15
Down	1	4	1	2	—	2	10
Fermanagh	1	1	—	1	—	—	3
Londonderry	1	1	1	1	1	1	6
Tyrone	2	—	—	—	2	—	4
Totals	10	13	7	9	7	10	56

Live Stock Experiments.

Experiments to obtain information as to the possibilities of the production of "Baby" Beef were carried out at five centres in the counties of Antrim, Down and Tyrone. The main alterations from the experiment, which may be found on pages 110 and 111 of the appendices to last year's report, are as follows :—

(a) Maximum age of calves increased from fifteen to sixteen months.

(b) Maximum amount of concentrates to be fed to " Baby " Beef calves increased to 8 lb. per head per day.

An experiment to ascertain whether pigs can be economically fattened in the open air was carried out in each county, the number of centres being eleven.

Results.

Many experiments outside the scope of the official scheme were carried out by the instructors in agriculture and horticulture, and the results, together with the results of the experiments in the official scheme, appear in the annual reports of the several county committees of agriculture.

Demonstrations.

It will be observed from the tables showing the duties carried out by the instructors and overseers that, so far as the laying down of demonstration plots was concerned there was a consider-

able extension during the year 1925-26 in this important feature of the work of these officers. Over 2,500 demonstration plots relating to grass seed mixtures, the application of phosphates to pasture, the liming of land and varieties of different crops, were laid down during the year under review. This development in field plot work is a matter of considerable importance, as these plots afford a very valuable medium for bringing prominently to the notice of the farming community the results which can be secured by the adoption of up-to-date methods of farming such as the use of proper varieties of seeds, application of suitable manures, etc.

Improvement of Pastures.

The special attention which has been directed to the laying down of wild white clover and phosphatic manure plots was continued during the period under review, and the following table shows the number of plots laid down in each county :—

County	Wild White Clover		Phosphatic Manures	
	Number of Plots		Number of Plots	
	1924-25	1925-26	1924-25	1925-26
Antrim	35	54	74	80
Armagh	18	50	37	54
Down	75	104	74	108
Fermanagh	33	49	89	169
Londonderry	53	58	68	95
Tyrone	128	132	130	123
Totals	342	447	472	629

Exhibits at Agricultural Shows.

Educational exhibits on a much larger scale than heretofore were staged at the summer show of the Royal Ulster Agricultural Society held at Balmoral on 26th, 27th and 28th May, 1926, and at the summer show of the North-West of Ireland Agricultural Society's show held at Londonderry on the 23rd and 24th June. The extension at Balmoral was made possible by the provision of the new and commodious Exhibition Hall for the housing of the exhibit. As in past years, these exhibits attracted considerable attention and elicited favourable comment.

The predominant idea throughout the entire exhibit was "Increase output without increasing outlay and thus reduce cost of production." Exhibits indicating how this may be done were an outstanding feature. In the crop husbandry section the question of increased production by the use of good, high-yielding varieties of crops, by suitable and judicious manuring, by improving pastures and by the destruction of farm pests and diseases was given prior attention. The Plant Breeding Division co-operated

by providing exhibits indicating the most promising varieties of cereals for cultivation in Northern Ireland, and showing comparative yields from various varieties grown in experimental plots. The most productive and popular of the new varieties of potatoes formed a valuable part of the crop husbandry section, while the exhibits indicating the importance of certain diseases of potatoes such as leaf roll and mosaic were also instructive.

Suitable exhibits emphasized the extra monetary return that follows the proper use of manures and the adoption of a better system of management of the manure heap on the farm. By the aid of miniature plots from fields correctly seeded and treated attention was directed to the advantages to be derived from the use of good seeds mixtures and the suitable manuring of pastures. In this connexion the value of wild white clover was clearly shown, and an exhibit indicating the development of the wild white clover seed-saving industry in Northern Ireland aroused great interest. Increased production following the destruction of pests such as leather-jacket grubs and charlock was illustrated with suitable exhibits.

The raising, feeding and management of farm stock was an outstanding feature of the exhibit. Pens of stock comprising calves fed for baby beef, calves fed for sale as stores, calves reared on various rations, and pigs fattened on different rations and under both outdoor and indoor conditions were exhibited. The baby beef exhibit, which comprised two lots of calves of the same age and similarly bred, but fed for sale as baby beef and stores respectively, enabled farmers to judge between the cost of feeding for baby beef and the cost of feeding for sale as stores. Two lots of calves fed on the same farm on dry meals and on cooked porridge respectively, formed another exhibit of great practical value, while eight lots of pigs fed to demonstrate the effects of various systems of fattening and types of rations indicated the possibilities in connexion with the economical production of pork. A further exhibit in the pig section emphasized the importance of suitable rations both from the point of view of economical feeding and the avoidance of risk to the bacon trade by the production of inferior quality pork through the use of certain foods.

The exhibits in the milk production section showed the advantages to be derived from the keeping of milk records and the subsequent utilization of such records in the endeavour to increase production without increasing the cost. It was demonstrated that the feeding of cows could be improved and more milk produced without adding to the original outlay on feeding stuffs.

Demonstrations of the methods involved in the production of milk that will not sour for several days were given. These demonstrations showed that the production of such milk is not beyond the possibility of any cow-owner no matter how small the herd may be.

The method of preventing horns growing on young calves by treating with caustic potash was demonstrated on suitable animals, and much interest was manifested in these demonstrations. Breeders of calves intended for sale as "stores" now realize that hornless "stores" are more valuable than those possessing horns.

A special display designed to instruct sheep owners in better methods of clipping and handling wool amply justified its inclusion in the general scheme of exhibits. Actual demonstrations of clipping, grading, tying and management of fleeces were given. A further exhibit illustrated the improvement effected in sheep flocks through the use of high grade rams.

In the poultry section the main part of the exhibit emphasized the great value of winter eggs in profitable poultry keeping and indicated how eggs may be obtained during the winter months. Many lots of live chickens and adult birds illustrated various aspects of poultry management, including breeding for large eggs, feeding for eggs, the value of early hatching, and the advantages of good housing. The factors essential to the production of clean eggs were effectively shown. The diseases of poultry and the measures necessary to combat such diseases were featured in the exhibit prepared by the Animal Diseases Division, as well as specimens relating to diseases and ailments of other farm stock.

The methods of marketing farm and garden produce formed an important section. In this section a particularly valuable exhibit was a model egg shipper's store, fully equipped and fitted for efficient work. Suitable exhibits showed also the best method of marketing dead poultry.

In the horticultural section an interesting and instructive display was arranged. The treatment and management of fruit trees and bushes, including grafting, pruning, etc., were effectively demonstrated with suitable specimens. The detection and control of the common pests and diseases encountered by fruit growers and vegetable gardeners were dealt with in an exhibit of much value. The Plant Diseases Division co-operated in the preparation of the latter section and an exhibit imparting considerable information on horticultural pests and diseases was arranged.

Poultry in Orchards.—This experiment was continued and useful observations are being made. It is hoped that in due course some concrete figures regarding the advantages of the system will become available.

The cultivation of vegetables, especially cabbage, and the preservation of fruit by bottling were two additional features of the horticultural section. Actual demonstrations of the fruit bottling process were given.

The educational facilities which are available at the Ulster Dairy School and at Greenmount Agricultural and Horticultural College for the teaching of girls and boys, respectively, were illustrated by representative exhibits from both these Institutions.

In the Ulster Dairy School exhibit sections relating to poultry-keeping, dairying and domestic science, and featuring the work done by the pupils at the school were arranged; while demonstrations on the trussing of poultry and on the packing of eggs intended for hatching were given at intervals by school pupils. The Greenmount Agricultural College Section included exhibits drawing attention to the scope of the course and to the work done by the pupils.

In the Publications Section copies of all leaflets and other literature issued by the Ministry were available, and were largely in demand.

Specimen maps, specially suitable for farmers and landowners, supplied by the Ordnance Survey Office, were displayed.

Valuable assistance in connexion with the various exhibits was given by the instructors employed by county agricultural committees.

5. Research.

Chemical and Animal Nutrition Division.

In the last annual report attention was directed to the fact that the agreement come to between the Ministry and the University, whereby the staff of the division were responsible for the University teaching work in agricultural chemistry, would undoubtedly limit the activities of the division in other directions. This forecast has proved true, and as a consequence it has been found impossible to develop the research and experimental work to the same extent as in previous years. The actual time occupied in teaching has increased considerably, and has not yet reached its maximum. Much of the work in connexion with the organization of the Faculty of Agriculture has been discharged by the Head of the Division.

New Buildings.—At the present moment the division is housed in five separate parts of the University buildings and none of these parts has an internal connexion with any other. The total space available is, moreover, quite inadequate to accommodate the work in hand which is in consequence correspondingly hampered. Much time has of necessity been devoted to improvizing temporary facilities and to making day to day adjustments which will enable the work to continue. It is, however, satisfactory to be able to record that the new University buildings which, as a result of the Ministry's financial aid, are being erected for the purpose of housing the divisions stationed at the University are being rapidly completed. It is anticipated that these buildings will be ready for occupation during the summer of 1927. On the staff of the division has fallen the task of assisting the architect in planning and equipping those sections of the buildings which are to house the division.

Phosphates.—This investigation has now been completed. The plan of the investigation, together with a broad outline of the results obtained, was given in the second and third annual reports. A full report of the investigation will be included in the first issue of the Ministry's Journal which will be published in the spring of 1927.

Silage.—A detailed report of this investigation will also appear in the Ministry's Journal.

Soils.—Soil work has been continued on the lines recorded in previous reports. The plan has been followed of recording as much information as possible concerning soils under experimental treatment. The development of such work is necessarily slow and some years must elapse before it bears fruit. During the past year but little progress has been made in this section owing to the pressure of other and more urgent work.

Animal Nutrition.—Although the necessary facilities for research and experimental work on the problems of animal nutrition do not yet exist, it is a real satisfaction to be in a position to state that the preliminary arrangements for the establishment of an experimental farm at Hillsborough for animal nutrition have been completed, and that in the near future the division will have adequate facilities for investigation work on what is perhaps the most important aspect of the agricultural industry of Northern Ireland. The staff of the division, in conjunction with the Head of the Crop and Animal Husbandry Division, devoted considerable time to the planning and organization of the Hillsborough research and experimental station. In the meantime the division has continued and must for some time continue to avail itself of every opportunity to carry out investigation work on local farms. It is gratifying to be able to record that where such facilities exist the farmers have gladly put them at the disposal of the division. There can be no doubt that the farmers in Northern Ireland are rapidly becoming keenly alive to the great possibilities of the animal side of their industry and in particular to the important part which nutrition plays in the successful development of animal husbandry.

Baby Beef.—It has not been possible with existing facilities to develop this work further, and it is proposed to leave the work in abeyance until the experimental farm at Hillsborough is in working order. Although experimental work has ceased, the original work of the division continues to yield good results. A rapidly increasing number of farmers are marketing their young cattle as "Baby Beef," and regular sales are now being held at the principal Belfast livestock auction markets. At the last special sales of "Baby Beef" cattle the entries were much more numerous than in the previous year.

Pigs.—Two reports on the work undertaken by the division will be published in the Ministry's Journal.

Poultry.—The work on poultry nutrition is being conducted with the co-operation of the staff of the poultry division at Stormont. In addition the work has for some time past been linked up with similar work which is being carried out in Scotland. This linking up has been strengthened by forming the various workers into a committee—the Poultry Research Committee of Scotland and Northern Ireland. By pooling in this way the resources of Scotland and Northern Ireland it was felt that much more rapid progress would be made than by each centre working as a separate unit.

The experimental work carried out during the past year has shown that it is possible to increase the rate of growth in chicks by from 60 to 100%. The birds in this experiment have been retained and the experiment is being continued with a view to ascertaining whether such development has a beneficial or harmful effect on the number and size of the eggs during the pullet year.

The investigations at present on hand show the great importance of the part played by nutrition in the well-being of heavy laying hens, and illustrate in a very striking manner how work on breeding and selection can succeed only when corresponding developments are made in the sphere of nutrition. For example, the investigations have shown that the egg production of high grade stock can be increased by over 30% during the first or pullet year and over 70% during the second year by a better understanding of nutritional requirements. A further important factor is emerging from these investigations, namely, that the size as well as the number of eggs laid is influenced by feeding. Thus, for example, by modifying one of the best cereal rations in common use it has been possible to reduce during the first or pullet year the proportion of second grade eggs laid from 56% to 32%, and during the second year from 42% to 8%. Such results indicate in a very striking way the extent to which an imperfect knowledge of nutritional requirements may be responsible for turning not only a potentially heavy laying bird into a second or third grade producer but also, of equal importance, a big egg hen into a small egg hen. Further particulars will be found in the section dealing with the poultry division, page 37.

Milk-Testing.—The increase in the number of milk recording associations has naturally involved a further expansion of the milk-testing work. As a consequence it became essential in March last to transfer this laboratory to larger premises.

During the year 108,448 samples were dealt with. The development of this work may be judged from the following comparative figures :—

	No. of Associations.	No. of Samples tested.
Year ended Sept. 30th, 1924	34	44,543
,, ,, ,, ,, 1925	42	76,938
,, ,, ,, ,, 1926	53	108,448

The number of milk-testing reports issued to farmers during the course of the year was approximately 14,000. It has been possible to handle this large volume of work only by organizing the milk-testing department on the principle of a Ford factory. The work involved has been very materially decreased by the ingenuity of the officer in charge who has invented a "Miscometer." This apparatus is capable by mechanical means of compositing the morning and evening samples of milk, mixing the bulk sample, delivering the required quantity into the milk-testing tube and the surplus into the reserve bottle which is kept for reference. This apparatus alone has saved the services of an additional assistant. The "Miscometer" has been a source of great interest to visitors to the department. Two sets of this apparatus have been ordered by the Department of Agriculture, New Zealand.

Clean Milk.—An effort has been made by the division to interest farmers in the North of Ireland in the production of Grade A tuberculin tested milk. As the result of these efforts two farmers are at present producing milk of this quality in the North of Ireland and the milk is on sale in Belfast, Limavady and Londonderry. This is the only milk in Northern Ireland which complies with the standards and requirements of the Ministry of Health (London) for the sale of clean milk with an adequate guarantee of freedom from tubercular infection. It is earnestly to be hoped that facilities will be afforded for rapidly developing the promising start which has been made. It is not only of value to the agricultural community but it is of vital importance to the town and urban population. Indeed, it is no exaggeration to say that only by the development of this work can the problem of tuberculosis in cattle and its eradication in children be successfully tackled. The development of the work on Grade A tuberculin tested milk is being temporarily undertaken by the Crop and Animal Husbandry Division.

Advisory Work.—The advisory work continues to grow. The majority of the enquiries have been in connexion with the feeding of stock. No greater tribute can be paid to the value of the work than the fact that fertilizer and feedings stuff manufacturers and merchants have during the past year constantly consulted the division concerning the suitability of the products which they were offering for sale to the farming community. This type of enquiry has been encouraged because, as will readily be realized, it is in the best interests not only of the trade but of the agricultural community. One very important advance has already resulted from such co-operation, namely the placing on the market of balanced rations for dairy cows, with a guarantee that they are compounded in accordance with the Ministry's formulæ. The supply of these balanced rations to farmers has been taken up on an extensive scale by a number of creameries, and there is increasing evidence that their use has been of material assistance in maintaining the flow of milk during the winter months.

Lectures.—During the past winter the head of the division gave eight lectures in various districts to branches of the Farmers' Union and to milk recording associations. The division also undertook teaching work in connection with the classes held at Cookstown for poultry instructors, and at the class for supervisors of milk recording associations.

General.—The head of the division represented the Ministry at the meeting of the General Assembly of the Institute of Agriculture at Rome. He has also acted as the Adviser for Northern Ireland to the British Representative on the Imperial Economic Committee. In connexion with the new Fertilizers and Feeding Stuffs Bill, the division has co-operated with the Government Laboratory (London) in obtaining a uniform method for the determination of fibre in feeding stuffs.

The following papers have been published by the staff of the division :—

(1) "*The Miscometer—an Apparatus for Obtaining Composite Samples.* By J. Houston. "The Analyst." Sept., 1926.

(2) "*The Production of Baby Beef in Northern Ireland.*" Scottish Journal of Agriculture. Vol. IX. 1926.

(3) "*Dairying in Northern Ireland.*" Journal of British Dairy Farmers' Assoc., 1926.

(4) "*Are Mineral Additions Necessary in Pig Feeding?*" By R. G. Baskett and G. S. Robertson. National Pig Breeders' Assoc. Year Book, 1926

Crop and Animal Husbandry Division.

This division was formed in December, 1925, and commenced operations in January, 1926.

Teaching Work.—A considerable proportion of the available time has necessarily been occupied in organizing the division and in obtaining and preparing material in connexion with the teaching work commenced in January, 1926.

Advisory Work.—The division has temporarily taken over from the Chemical and Animal Nutrition Department the work in connexion with the production of Grade A, tuberculin tested milk. Several farms in the neighbourhood of Belfast have been visited, and it is a pleasure to be able to record that the production of Grade A tuberculin tested milk is arousing considerable interest amongst the more enlightened milk producers. As a result of the inspections which have been made there can be no doubt that conditions in Northern Ireland are just as favourable for the production of Grade A (T.T.) milk as in any part of England and Scotland. With a view to stimulating interest in the work amongst the general public an exhibit was prepared for the "Open Day" held by the University in connexion with the laying of the foundation stone of the new agricultural buildings.

A research institute will shortly be established at Hillsborough, Co. Down, and the work there will be closely associated with the activities of this division. Considerable time has already been devoted by the head of the division to making the necessary preliminary arrangements.

Seed Testing and Plant Disease Division.

Considerable expansion of the activities of the division took place during the year. The chief difficulty met with by the seed testing station during the season under review was, in fact, inadequacy of accommodation to deal with the number of samples received during the busy winter period. The rejection of some desirable new undertakings in the plant disease section was also unavoidable.

During the coming year it is anticipated that the division will be able to occupy new premises, specially designed under the supervision of the chief officers, now in process of erection in Elmwood Avenue, Belfast. Present difficulties of accommodation will then no doubt disappear.

The number of farmers making use of the services offered by the division increased materially, but is is hoped that future seasons will see much greater extension in this direction.

Five papers on subjects of seasonal importance to agriculturists were broadcast from the Belfast and London broadcasting stations.

Seed Testing.

The number of samples tested in the Official Seed Testing Station showed an increase of approximately 10 per cent. as compared with the previous season. The total of routine samples, apart from experimental tests, was 2,902. Including experimental examinations the station handled approximately 3,500 samples. Purity and germination reports were furnished on all routine samples, and, at the instance of the seed trade, interim germination results in addition were issued on a large number of samples. The practice has now been adopted of issuing interim germination reports on all samples, and it is evident that this additional service is much valued by those submitting seed.

The distribution of samples among the various classes of sender, and the percentage constitution of the chief groups of species is shown in Table I.

TABLE I.

Analysis of Samples tested.

Kind of Seed	Per cent. of Total	No. of sample submitted by:—			
		Wholesale and Retail Seed Merchants	Farmers	Officers of Public Departments	Official samples drawn by Ministry's Inspectors
Ryegrass	67·2				
Other grasses	11.4				
Flax	6.3				
Clovers	10.1				
Cereals	0.7				
Roots and Vegetables, &c.	4.3				
Total number 2902	100.0	2402	135	170	195

Reviewing the samples as a whole, the general quality was good. Germination capacity was superior to that found in the season 1924-1925, but in some of the important species the purity fell somewhat below the previous season's figure. This is probably referable to bad weather, making cleaning operations difficult, in 1924, followed by a relatively better harvest period in 1925. In Table II are the average and modal figures obtained for the more important species. Such figures are not calculated where the number of samples tested is insufficient for reliable averaging, and in all cases of grasses, only the figures from "Continental" tests are used.

TABLE II.

Showing survey of results given by chief species.

Species.	No. of Samples	Purity				Germination		Average % Hard Seed
		Average %	Injurious Weeds No. of Samples containing:— Over 1%	Over 2%	No. of Samples containing Ergot	Mode %	Average %	
Per. Ryegrass	722	95.4	...	180	35	90	84	...
Italian ,, ...	341	96.1	...	66	21	87	82	...
Mixed ,, ...	111	95.1	...	44	6	87	80	...
Crstd. Dogstail	36	87.4	...	10	8	...	81	...
Red Clover ...	77	97.3	1	...	2	...	84	4
White Clover...	24	95.6	4	...	Nil	...	82	7
Wild White ,, ...	49	96.4	Nil	...	1	...	80	7
Alsike ,, ...	47	96.1	Nil	...	Nil	...	87	7
Flax	141	97.1	...	...	Nil	92	87	...
Timothy ...	23	98.0	...	Nil	5	...	94	...
Cocksfoot ...	34	91.5	...	Nil	Nil	...	92	...

Note—The "modal" figure is that which occurs most frequently in a series. Thus in the table Perennial Ryegrass showed a germination of 90 per cent. more frequently than any other figure. The "mode" thus represents the general quality of seed on the market more accurately than the 'average,

It will be seen that as usual, mixed ryegrass crops gave somewhat lower quality samples than perennial or Italian alone, and it is satisfactory to note that rather fewer mixed samples were received. One or two very poor perennials brought the average germination down but the general quality as represented by the "mode" was high. The high "mode" for Italian may indicate that a greater proportion of high-germination French samples than usual was on the market. The low purity figure and relatively higher growth average for crested dogstail are probably due, the one to seasonal difficulty in the home-grown crop, and the other to the resulting necessity to use New Zealand produce. The purity figure is also lowered by the number of samples submitted for test before cleaning.

It is very satisfactory to record that a good crop of Northern Ireland wild white clover was harvested in 1925, mainly in the Ards peninsula of county Down, and that the produce was of good quality. As indicated in Table II, the average purity and germination figures for all samples received were 96.4 and 80 + 7 respectively. The figures for Irish produce were in both instances practically identical with these averages. The Irish seed showed a rather marked tendency to increase in "hardness" after threshing. Further reference is made in a later paragraph to the wild white clover industry.

In the early part of the season flax seed showed a peculiar reluctance to germinate readily, which was, however, to some extent overcome as the season advanced. Upon investigation in the plant disease section, the remarkable fact was elicited that no less than three quarters of the samples received during the season were infected with the fungoid disease called "seedling blight." This does not necessarily mean that the same proportion of crops would be spoiled, but nevertheless the position is judged sufficiently serious to warrant further investigation.

It has hitherto been impossible to discriminate in purity analyses, between seeds of Italian ryegrass which have lost their awns, and seeds of perennial. In conformity with other European laboratories, the station has, therefore, during the past season, reported awned seeds found in perennial samples as "useful impurities" and has neglected possible (but unidentifiable) perennials occurring in samples of Italian. This convention is necessary to avoid trade disputes between countries served by different stations.

International Seed Testing Association.—The station again participated in the "referee" work of the Association. Results obtained from the samples circulated for comparative testing by fifty official stations were very close to the averages for all stations, and the uniformity between figures reported by this station and other British stations was especially satisfactory.

Congress of British Seed Analysts.—Two officers attended the 1925 Congress of British Seed Analysts at the National Institute of Agricultural Botany, Cambridge. Results obtained on referee

samples issued by the Ministry of Agriculture and Fisheries were excellent, differences between figures obtained here and at other British official stations being negligible. Considerable importance is attached to these comparative results in view of the volume of trade passing between Great Britain and Northern Ireland in agricultural seeds.

A paper upon the practical aspects of ripening phenomena in grasses was read before the Congress by the head of the division.

Research.

Time for laboratory research has been less than usual both for seed analysts and also for senior officers. Investigations have, however, been carried out on temperature and moisture relations in grass seeds, along lines not previously explored, upon the reaction of ryegrass seed kernels and husk to atmospheric conditions, upon the life histories of insect enemies of grass crops and upon the behaviour of unripe grass seeds under various artificial ripening treatments.

In the field, trials already in hand and described in previous reports have been continued. The series of trials to ascertain the effects of varied manurial treatment upon the quality of grass seed has now been in operation three years. The collected results to date indicate that in an average season, although yield may be influenced the quality of seed shows no material response to manurial dressings.

Observations upon the behaviour of shipped seed are being continued, and sufficient results are now accumulated to suggest definite theories as to causes of loss. It is now hoped to organize a series of experiments to be carried out by an officer actually travelling to New Zealand with a shipment, which, if successful, should point definitely to means of preventing injury.

Experiments are in hand which it is hoped will lead to the development of new seed industry in the province. The biology of grass crops at present not represented in Irish seed husbandry are being studied under farm conditions with this in view.

The head of the division has taken an active interest in developing wild white clover production in suitable localities, and results so far are very satisfactory. Crops, stacks, and threshing were inspected personally, in the company of the county instructor in agriculture concerned. It is gratifying to report that a good crop was harvested in 1925, and that the 1926 crop is estimated to exceed it both in quality and quantity. Attention has successfully been given to provision of market facilities. An extended series of plots on a farm scale (totalling about a score of sets) has been organized with the co-operation of county instructors and overseers in every county, to compare the cropping qualities and longevity of English, Irish and New Zealand strains of wild white.

Plant Diseases.

Advisory Work.

During the season 1925-26 the advisory work has shown an increase on that of 1924-25. One notable feature of the season has been a decrease in the number of specimens of common diseases sent in for report, and an increase in specimens affected with more uncommon maladies. The plants received cover the whole range of those cultivated in Northern Ireland, the majority of them concerning potatoes, flax and fruit. A greater interest and a more eager request for information have been points more noticed among enquirers than heretofore. Specimens have been received in better condition on the whole, but there is still much room for improvement in this direction. It is essential that they should reach the laboratory in as fresh and natural a state as possible.

Research.

Potato Diseases.—The late or ordinary blight (*Phyptophthora infestans* de Bary) has been very prevalent and severe in most districts. In many places the haulms had been all but killed by the disease by the middle of August. The potato spraying survey which was commenced in a small way in 1923 and expanded in 1924 to embrace the whole of Northern Ireland has now been running for four seasons. It it hoped that the time will soon be at hand when definite conclusions can be drawn from the results obtained.

The main points with which the survey is concerned are :—

1. The most effective strength of Burgundy Mixture (copper sulphate and washing soda) to use.
2. The number of times spraying should be carried out.
3. Varietal susceptibility to the disease.
4. Wet spraying versus dry spraying (dusting).

It is not perhaps out of place here to mention the seriousness of wart disease or black scab. It is the duty of any grower finding the slightest trace of wart disease in his crop to report it immediately to the Ministry. Leaf roll, mosaic and allied diseases, which are respensible for such a large amount of degeneration among potato stocks, should be kept in mind, and when changing seed it is most important that only that from the most healthy and vigorous stocks should be obtained.

Flax Diseases.—Seedling Blight (*Colletotrichum linicolum* P & L.) has been the most prominent feature amongst flax diseases. Many crops went off in the "brairding" stage, and others gave but a poor yield of weakly plants due to the ravages of this fungoid disease. The disease is carried by the seed. As the germ is to be found in the outer layers of the seed coat and not on the outside of the seed, the process of obtaining a method of seed disinfection which will cause the fungus to be killed, and the seed not to be injured, is a difficult one. An examination of samples of flax

seed sent to the seed testing station during the season 1925-26 revealed the fact that 75% of these samples were infected to a greater or lesser extent. It would appear that different varieties of flax show a varying degree of susceptibility to the disease. The presence of the fungus in vigorous flax plants would point to the fact that the disease may be present and yet do little harm unless the weather conditions at critical periods, such as "brairding" time, are unfavourable to the crop. The seed harvested from the crop may, however, carry the disease over to the next season. Samples of seed harvested in England have been found to carry the disease.

Fruit Diseases.—American gooseberry mildew and diseases of the apple have received the most attention.

American Gooseberry Mildew.—Five seasons' work on this disease have shown that it can be very efficiently controlled by spraying. It has also been shown that by using a combined spray (fungicide and insecticide) the larvae of the gooseberry sawfly, often known as "caterpillars," can be destroyed by the same spraying operations.

With the varieties Whinham's Industry, Crown Bob, and Keepsake for the treatment of American gooseberry mildew the bushes should be sprayed twice, once immediately after flowering and again three weeks later, with ammonium polysulphide 1 in 199 plus 4 lbs. soft soap per 100 gallons of spray fluid.

For the combined treatment of American gooseberry mildew and gooseberry sawfly larvae the bushes should be sprayed twice at the times mentioned above, with lime sulphur 1 in 99 plus 2½ lbs. lead arsenate paste plus 5 lbs. freshly hydrated lime per 100 gallons.

With "Amber" bushes and all other sulphur varieties for the treatment of American gooseberry mildew, the bushes should be sprayed once in February with a 2% caustic soda solution (2 lbs. in 10 gallons of water), and twice in summer at the same times as mentioned above with a solution of washing soda (1 oz. per gallon of water).

Apple Diseases.—The number of experimental orchards was increased for this season, the number now standing at six. Extremely hopeful results were obtained with both summer and winter spray fluids. By spraying the trees in February with one of the tar distillate spray fluids, the trees are cleaned and the eggs of the apple greenfly and the apple sucker are destroyed. The summer spraying with excess lime Bordeaux mixture (2¼ lbs. copper sulphate, 8 lbs. fresh burnt lime and 40 gallons of water) has proved to be of very great importance, in keeping fungoid diseases such as apple scab (*Venturia inæqualis* Aderh.) in check and in ensuring a crop of fruit of the best quality. It is not too much to say that apple culture cannot be carried on successfully unless spraying operations are carried out thoroughly and regularly. Experimental results for the season 1926 have been largely

handicapped by the severe frosts of May 14th and 15th when the greater portion of a most promising display of bloom was destroyed.

Celery Leaf Blight.—An experiment carried out on the control of this fungoid disease has given most interesting results. During 1925 the attack was not severe, and there was little difference found in the value of the spray fluids used. In 1926 the attack has been severe and the plots sprayed with 2% Burgundy mixture (8 lbs. copper sulphate, 10 lbs. washing soda, 40 gallons water) have remained remarkably free from the disease. Plants should be sprayed four or even five times during the growing season with this mixture. This experiment is being conducted at the Greenmount Agricultural College, Co. Antrim.

Diseases of the Forest Nursery.—For the last two or three seasons diseases of forest tree seedlings, particularly those of Sitka spruce and Douglas fir, have assumed a serious nature, and experiments dealing with the disinfection of the seed beds have been undertaken. Such substances as sulphuric acid, cresylic acid, mercuric chloride, formalin and Cheshunt compound have been used. Diseases caused by the fungi, *Rhizoctonia* species and *Botrytis* species have been particularly rife, and it has been found that by treating the seed beds at sowing time with 1 gallon dilute sulphuric acid (2 oz. concentrated acid per gallon) per square yard, a perfect control of these diseases has been obtained. Not only has the sulphuric acid proved to be an efficient fungicide, but it has suppressed weed growth and a saving of expenditure ranging from 40—60% has been made on the cost of weeding. These experiments have been carried out at the forestry centre at Baronscourt, Tyrone.

Treatment of Wheat for "Bunt."—In collaboration with the plant breeding division at Stormont a few small trials were conducted in connexion with this problem. Formalin (1 pint 40% Formalin in 60 gallons of water), copper sulphate (2 lbs. copper sulphate in 10 gallons of water), and a proprietary preparation were used. Plots were sown with seed treated with these materials, and a census of smutted or "bunted" ears was taken at the end of the season. No bunted ears were found in the plots where the seed was treated with formalin and copper sulphate, and 15% bunted ears were found in the plots where the seed was treated with the proprietary preparation.

Plant Breeding Division.

Field work in 1926 was again devoted mainly to oats and flax The season was on the whole favourable, but the dry weather encountered in early summer operated entirely to the advantage of autumn-sown plants, by that time well established and better able to withstand adverse conditions.

During the summer some 500 farmers and others interested in the work attended the various demonstrations held. For the

benefit of such visitors a guide book was prepared which provided a key to the arrangement of the plots and also contained brief notes explaining the general scheme of work.

Oats.

Having regard to the amount of space and labour available, it has become apparent that the greatest amount of seed of any one variety that can be accommodated at Stormont is 14-21 lbs. and that only a limited number of plots of this size can be sown. In the season under review six such plots were laid down, all of these being varieties well adapted for cultivation in Northern Ireland, viz., King, Crown, Victory, Potato, Sandy and Tyrone Tawny. The produce of these plots, amounting in each case to from 2 to 3 cwts. will be grown next season at one of the Ministry's experimental farms, or, under supervision, by selected farmers, and should then give a quantity sufficient for distribution on a limited scale. As explained in the report made last year, once such distribution of pure seed of a variety has commenced, an approximately similar quantity of seed will be ready for distribution each spring thereafter.

In the season 1925-26, the produce of similar large plots of the previous year was grown on in this manner, and should be available for distribution in the coming spring. The varieties referred to here are King, Crown, Victory and Potato. Quantities of King, Crown, and Victory have been thus annually distributed during the last few seasons in districts selected by the County Instructors as being suitable for these varieties. The strain of Potato oats was under test throughout Northern Ireland during 1926, undergoing comparison with commercial strains of the same variety grown side by side with it, and similarly treated in all respects. The results of these trials are not yet available. Should they prove to be in favour of the pure line strain that strain will be added to the list of pure stocks propagated at Stormont for distribution to farmers.

As has already been mentioned, the produce of the promising hybrid plants of the previous year was grown in the cage this season, partly autumn-sown and partly spring-sown. One of the parent varieties is winter-hardy but grey-grained and, the others being various white-grained spring forms, these crosses afforded an opportunity of learning something of the inheritance of winter-hardiness, and of securing a white-grained oat which would survive the cold, wet Northern winter. There seems to be every likelihood of both hopes being realized.

The whole progeny could not be sown in autumn on account of the risk attached to such a proceeding which involved the sacrifice of non-winter-hardy forms. Thus undoubtedly some plants were killed which, had they been tried out in spring, would have proved good high-tillering forms entirely suitable for spring

cultivation. For this reason only half of the progeny was sown in autumn to provide material for the selection of white, winter-hardy forms, and the remainder sown in spring to provide white, high-tillering, spring sorts. As has been mentioned, the autumn-sown lots were, due to the weather encountered, immeasurably superior, and the spring-sown lots a comparative failure, but, fortunately, it eventuated that winter-hardiness was inherited as a dominant condition, and thus many plants other than those pure for winter-hardiness survived, i.e., plants which themselves survived winter conditions, but whose progeny will contain both winter-hardy and non-winter-hardy forms, so that there is a sufficiency of selection material for both purposes, although the spring-sown lots have been discarded. Though no data on its inheritance are yet available, it was obvious that the tillering capacity of the high-tillering parent was reappearing in many of the hybrid progeny, in many cases dissociated from the other, undesired, characteristics, such as grey grain colour, of that parent.

The checker-board method of variety-testing described in the last report was again employed to an even greater degree than in the previous season. The autumn-sown checker board, which was a replica of the one laid down the previous year, confirmed the conclusions drawn from the first in every particular, and so precisely that further confirmation in this way has been deemed unnecessary. These results will be published in detail in due course. At present it may safely be said that Grey Winter or Essex Grey is by far the hardiest of the winter varieties tested, and Marvellous very clearly the least hardy. Marvellous is not to be recommended for autumn sowing under the winter conditions general in Northern Ireland. A white oat capable of withstanding these conditions has yet to appear, though there is no reason to assume that white grain colour cannot be associated with resistance to cold.

The spring-sown checker board was the largest yet attempted, comprising 60 plots. In it a number of new varieties of various types, e.g., Potato type, Sandy type, Victory type, were tested against older varieties. The results have not yet been examined, but in any case will require at least two years' confirmation by repetition before their trend can be certainly identified.

A new checker-board series was begun in which the same variety was used throughout, but three different rates of seeding were employed in the plots composing it. This series is designed to yield information on tillering capacity, which is regarded as one of the most important attributes of a variety, and also as an investigation into the adequacy of the methods used at present in checker-board work. Weighings, counts, etc., have not yet been made, but some of the results were unexpected, and may have been due to the weather conditions encountered, other seasons, however, will show whether or not this is so.

Flax.

The experience gained in the preliminary trial of testing methods made in 1925 proved most valuable this season when a large number of trial plots was laid down. Eight pure-line varieties were tested, each variety being represented by six strip plots, each 15 yards by 2 yards. The plots of the various varieties were intermingled in a random arrangement subject to slight restrictions. Approximately equal numbers of germinable seeds were sown in each plot, and the varieties will eventually be compared on the basis of the yield of fibre. Unfortunately, owing to the very wet weather prevailing, harvesting was a long-drawn-out operation, and the effects of this bad harvest will probably be noticeable throughout the later processes. Thus inequalities of retting are almost certain to have occurred, and, following an unequal retting, there must be irregular scutching results. However, it is hoped that, by virtue of the splitting up of varieties into a number of plots and the random distribution of these, all varieties will suffer from these adverse circumstances to an approximately equal extent, and that varietal differences will emerge from the collected data to be confirmed in later seasons.

Animal Diseases Division.

The work of the division expanded considerably in all directions during the year under review. There was a large increase in the number of inquiries and specimens from farmers and veterinary surgeons. The laboratory examination of material submitted under the Diseases of Animals Acts was transferred from the late Imperial Secretary's Department to the division on 1st April, 1926.

1,006 specimens were received for the purposes of diagnosis and research as compared with 371 specimens submitted during the previous year. Only a few specimens were received from counties Fermanagh and Londonderry. The results of the examinations were communicated to the senders and, in the case of non-scheduled, contagious diseases, advisory letters were sent or personal visits made. Many inquiries were dealt with in the absence of specimens.

Bovine Diseases.

Table showing the results of examination of specimens :—

Disease	Positive	Negative	Total
Tuberculosis, Milk Samples	7	82	89
Tuberculosis, Other Specimens	1	11	12
Epizootic Abortion, Blood Specimens	14	43	57
Epizootic Abortion, Other Specimens	1	1	2
Anthrax	0	1	1
Miscellaneous	0	0	80

The table shows a large increase in the number of specimens of suspected tuberculosis submitted for laboratory examination under the Diseases of Animals Acts. Seven specimens which were negative on microscopical examination were tested by animal inoculation with one positive result.

121 doses of abortion vaccine were issued. The dose of the vaccine was reduced from 50 c.c. to 5 c.c., a concentrated type being prepared. An endeavour was made to collect data regarding the value of the vaccine. A number of vaccines was prepared against mastitis or garget.

Sheep Diseases.

Only 10 specimens were received, of which 7 represented liver fluke. Losses from this disease were very slight as compared with the previous year. The division followed closely experiments undertaken elsewhere with carbon tetrachloride and now recommends this drug in preference to male fern extract for the treatment of infested sheep.

No specimens of braxy were received although this disease is responsible for heavy losses in Northern Ireland, often without the cause being recognised. Vaccination against the disease was carried out only on a small scale, but deserves to be more widely employed.

Pig Diseases.

Thirty-four specimens were received, chiefly representing worm infestation, which is discussed under research work. Only three cases of swine erysipelas were reported to the division.

Poultry Diseases.

Table showing the results of examination of specimens :—

Disease	Antrim	Armagh	L'derry	Down	Fermanagh	Tyrone	Other sources	Total
Bacillary White Diarrhoea (Chicks	86	29	3	41	3	6	4	172
Bacillary White Diarrhoea) Blood Samples	40	103	0	0	0	0	0	143
"Blackhead"	3	0	0	0	0	0	0	3
Coccidiosis	16	8	0	18	1	5	0	48
Fowl Typhoid	0	1	1	0	0	2	0	4
Gapes	0	1	1	14	0	6	0	*22
Roup	1	1	2	33	0	5	0	42
Tuberculosis	1	0	2	6	0	1	0	10
Miscellaneous	68	28	11	120	4	18	11	260
Total	215	171	20	†232	8	43	15	704

† Includes specimens from the Ministry's Laying Test
* Includes wild birds

A serious increase in the number of outbreaks of bacillary white diarrhoea was recorded during the year. It is of the greatest importance that survivors in outbreaks of the disease should not be used for breeding purposes, as they may lay eggs containing the causal germ of the disease. Chicks hatched from these eggs are infected and capable of infecting other chicks in the hatch. "Carrier" birds may be recognized by means of a blood test. Poultry keepers are advised to have their breeding stock tested, and to purchase eggs and chicks only from tested flocks.

An increased number of outbreaks of coccidiosis was also recorded. Treatment on the lines indicated in the Ministry's leaflet gave excellent results.

Although only a few specimens of "blackhead" were received, there was abundant evidence that the disease was a severe obstacle to turkey rearing. Losses amongst turkeys may be reduced by using ordinary hens for hatching and rearing, or by employing artificial methods.

The increase in the number of poultry specimens was largely due to the co-operation of the county poultry instructors.

Miscellaneous Specimens.

Twenty-eight specimens representing diseases of horses, dogs and cats were received. One specimen of suspected rabies gave a negative result.

Research Work.

The investigations regarding sterility outlined in the last annua report were continued. A Danish method of treatment wa applied to a number of barren cattle with encouraging results The experiments made possible a recommendation to farmers tha they should have their barren cattle examined by a veterinarian with a view to treating appropriate cases. Investigations were greatly hampered by a scarcity of animals with a known history. In this connexion each veterinary surgeon in Northern Ireland was invited to co-operate in the work by sending the genital organs of barren animals. The officers of the division again wish to acknowledge the facilities afforded at the Belfast abbatoir by the City Veterinarian.

Practically nothing is known regarding sterility in heifers. A disease called nodular vaginitis is commonly present, but there is no agreement as to its cause, significance, or even the animals which are susceptible. Investigations were commenced to elucidate these points.

Following a visit by the head of the division to certain continental laboratories to study methods of anti-tuberculosis vaccination, experiments were commenced with a French vaccine known

as B.C.G. seventy-five per cent. of calves in a tuberculous herd are being vaccinated at birth and thereafter annually, the remaining 25 per cent. being left unvaccinated. The calves will be killed after several years' exposure to natural infection and examined for evidence of the disease.

Heavy losses were experienced during the year amongst pigs from the condition described as "blows," "thumps," and "cough." Investigations by the division showed that the large majority of cases were due to worm infestation. From the evidence presented it appeared probable that the worm played a primary part by lowering the resistance of the animal, thus enabling secondary disease germs to become operative and cause pneumonia, which was constantly present in fatal cases.

A method of treatment not previously employed in Northern Ireland was introduced. Two or three c.c. of chloroform is injected into the nose by means of a double-nozzled syringe, preferably on three occasions at intervals of four days. The division is indebted to a Belfast veterinarian for testing the treatment on 76 pigs and to others, who, while reporting that the method was effective, did not furnish detailed results. Research work was also begun with a view to determining the cause and prevention of the pneumonia complication.

While a complete solution of the problem must await further investigations, farmers can markedly reduce losses by keeping pigs till they are at least four months old in dry, clean places away from wet land. The prevention of worm infestation is a matter of sanitation and cleanliness and of keeping the pigs under better conditions than are customary.

Experiments were continued with a Dutch vaccine against diphtheritic roup, to which reference was made in the last annual report. Two field experiments were conducted on affected flocks comprising 116 and 332 birds respectively. In the first experiment after one month, 2.3 per cent. of the vaccinated birds developed the disease as compared with 17 per cent. of the unvaccinated birds. In the second experiment the results were 22.9 per cent. as compared with 27.3 per cent.

Four experiments were carried out with chicks in an attempt to devise a vaccine against bacillary white diarrhœa. The results were disappointing, and a solution of the problem on other lines is being sought.

The examination of wild birds was continued with interesting results. Forty-two per cent. of 177 wild birds examined were found to harbour gape worms. The parasites were recovered from birds of all ages, the infestation being specially heavy (98 per cent.) in young rooks in the month of May.

General.

Four leaflets on animal diseases were prepared. Information was also distributed by means of wireless and other lectures. A course of instruction in diseases was given to poultry instructors.

A paper on "The More Important Bacterial and Protozoal Diseases of Poultry" was presented by the head of the division to the Annual Congress of the British Veterinary Profession.

Poultry Division.

The research work of the division has been continued in co-operation with the chemical and animal nutrition division. In addition, some feeding tests were carried out during the year in order to provide exhibits for the Ministry's general educational exhibit at the Royal Ulster Agricultural Society's Show at Balmoral in May.

Nutrition Experiments.—The amount of work which can be undertaken and its character are dependent upon the number of pens which are available after meeting the requirements of the laying test. The pens are designed for the accommodation of six birds, and are not in some respects ideal for experimental work. For example, not more than eight birds can be included in an experimental lot. This necessitates the duplication of each experiment at intervals of a year, and, as previous results have shown very clearly the desirability of continuing experiments with laying birds over a period of two years, progress must necessarily be slow. It is, however, satisfactory to be able to record that the experimental work has increased considerably, and that the results give promise of being of considerable economic importance to the industry.

Growth Experiment with Chickens.—During the past year an attempt was made to apply on a practical scale the results already obtained. Previous experiments had indicated that the addition of small quantities of mineral substances such as sodium and potassium phosphate and calcium carbonate (chalk) had considerable effect in increasing the rate of growth in chicks. During the past year five groups, each consisting of eighteen pure-bred chicks, were under experimental treatment. The control group received a ration of mixed cereals only, and the same ration was fed to groups 2, 3, 4 and 5, but with the following additions : group 2, linseed cake meal; groups 3 and 4, linseed cake meal and 2% of two slightly different mineral mixtures consisting of cheap well-known materials such as chalk, salt and steamed bone flour; group 5, whole milk ad lib. The results show that the addition of extra protein in the form of linseed cake is of no value, and that the small and inexpensive mineral additions fed to groups 3 and 4 increased growth to the extent of 25%, and that the milk fed to lot 5 increased growth to the extent of 60%. The pullets were separated from the cockerels and retained until the first lot, namely group 5, began to lay. Each group then received the same laying ration, namely the standard Stormont mash, and will continue to be so treated for a laying period of one year and perhaps two years. It is hoped by this means to ascertain whether the increased rate of growth

obtained in groups 3, 4 and 5 will result in more and larger eggs than in the control group. Generally speaking 50% of the pullets' eggs are second grade, and the experiment therefore aims at ascertaining whether the rate of growth of the young chicks has any influence on the size of the eggs during the pullet year.

Experiments with Laying Pullets.—The original experiment, which was designed with the objects of determining (1) whether the mineral content of the ration for laying pullets was of importance and (2) whether the type of protein influenced the egg yield, is being continued. These groups will have completed two experimental years by November 15th, 1926. A duplicate experiment was commenced on October 1st, 1925. The results have been of considerable interest to visitors, and are continuing to yield valuable information on the nutritional requirements of the laying hen. Some of the experimental rations have increased egg production by as much as 70%. In addition, the weight of the eggs has been increased by as much as 2 oz. per dozen, and the vitality of the hens, as measured by their liveweight increases, has been much improved. During the pullet year it has been found possible to reduce the proportion of second grade eggs from 56% to 32%, and during the second laying year from 42% to 6.6%. Results such as these are of special significance in connexion with schemes for the marketing of eggs in grades. They show that the actual performance of birds of heavy laying potentialities is in a large measure dependent upon their feeding and, further, that feeding may have a controlling influence on the grade of the eggs.

During the year a further experiment was commenced with laying pullets with the object of testing various foods rich in protein. Previous work has shown the possibility of at least one vegetable food rich in protein being substituted for fish meal, and it seems reasonable to suppose that several other vegetable foods rich in protein may be equally efficient. Such vegetable foods are available in abundance and are considerably cheaper than fish meal.

It is proposed to commence experimental work designed with the object of determining whether it is possible by nutritional means to increase the egg yield during the second and third laying years. Unlike most domestic stock the hen gives her heaviest yield during her first or pullet year. Her second year egg record is only 60% of her first year, and her third year 60% of her second. On the other hand it is during her second and third and succeeding years that the hen lays the largest or highest grade eggs. The problem may be partly nutritional and partly physiological. It is, however, of great economic importance, and it is therefore desirable to explore the possibilities.

Laying Test.—The fourth laying test which was conducted at Stormont, concluded on 16th September. There were 71 pens of pullets of various breeds under test, and an appreciable increase in the average number of eggs per pullet is to be recorded. The

cup presented by the Ministry for the pen of pullets laying eggs of the highest market value was for the first time won by a pen of White Leghorns. The White Leghorns on the whole maintained a very high standard of egg production, but the percentage of second grade eggs was very much higher than that of the White Wyandottes. In the case of the Leghorns it reached 56% as against 37% per cent. for the White Wyandottes.

The silver challenge cup, presented by the Scientific Poultry Breeders' Association, was again won by a pen of White Wyandottes.

The prize offered for the best pullet in the test was won by a Rhode Island Red, with a record of 267 eggs in 48 weeks, only one egg being second grade.

A detailed report on this test has been prepared and will be published in booklet form.

The following table gives the number of pens (by counties) competing in the Ministry's tests, each pen consisting of six pullets :—

	1922-23 Pens	1923-24 Pens	1924-25 Pens	1925-26 Pens
Antrim	3	16	17	11
Armagh	9	12	19	19
Down	23	34	24	29
Fermanagh	1	2	2	2
Londonderry	3	2	3	2
Tyrone	6	5	7	8
Totals	45	71	72	71

The following table shows the number of pullets penned, number of eggs laid, cost of food, return for eggs and gross profit over cost of food for each of the last four years :—

48 weeks ended	No. of Pullets penned	No. of eggs laid	Average No. of eggs per bird	Average value of eggs per bird	Cost of food per bird	Average price of eggs per dozen	Gross return per bird over cost of food.
				s. d.	s. d.	s. d.	s. d.
16th Sept. 1923	270	51,025	188·98	32 6·9	9 10	2 0·8	22 8·9
15th Sept. 1924	426	77,383	181·6	33 0·5	9 10·25	2 2	23 2·25
16th Sept. 1925	432	78,565	181·86	31 10·7	10 1·6	2 1·2	21 9·1
16th Sept., 1926	426	80,798	189·66	30 6·64	10 1·8	1 11·1	20 4·84

Preparations have been made for the fifth test commencing on 16th Oct., 1926.

6. Special Horticultural Experiments.

With the exception of the project to find a remedy for the control of black currant mite (big bud) these experiments were continued with slight modifications on the lines reported last year.

The owner of the plantation in which the black currant mite test was being conducted decided to clear out the entire plantation prior to replanting, and an alternative site for this test has not yet been selected. So far the results of this test confirm those obtained by other workers in indicating the comparative efficiency of spraying with lime-sulphur (one part in ten parts of water) when the first blossom trusses appear.

Capsid Bug Experiments.—A new series of experimental plots was started in another orchard, while further plots to test additional possible remedies were added to the old series. The apple crop in both orchards was a comparative failure,* so that definite quantitative results could not be obtained. Observation of the damage to the foliage and to the young shoots as well as of the few apples produced shows that on the plots sprayed with nicotine or nicotine sulphate the greatest control was effected. It was further noted that on the plots sprayed with nicotine or nicotine sulphate to which Bordeaux mixture had been added apples were more plentiful and showed less injury by Capsids than on the plots sprayed with nicotine or nicotine sulphate alone. The chief object in adding Bordeaux mixture was to test a spray that would be effective against both Capsids and apple scab. The results obtained in this respect from these trials are encouraging. Further details regarding experiments on the control of apple scab will be found in the report of the Plant Diseases Division. Tests of a lubricating oil gave disappointing results in the control of Capsids. A new leaflet—No. 33, "Spraying Calendar for Apple Orchards"—was issued during the year. In this leaflet are embodied the results of work dealing with the control of apple pests generally, together with the latest remedial measures.

Ovicidal or Egg-killing Washes.—Further work on the testing of various brands of these washes was carried through. Eighteen distinct brands were included in the tests, and the results obtained showed that twelve of these gave satisfactory results in the destruction of the eggs of insect pests. Of the remaining six, three gave a certain measure of control and three were practically useless. Several of the brands under test have not yet been put on the market, but reliable brands of these ovicidal washes are now available everywhere. Particulars regarding their preparation and application are given in leaflet No. 33.

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*The abnormally heavy frosts which occurred about the middle of May, just when apple trees were reaching full bloom, had a serious effect on the apple crop. Unless in particularly sheltered and favourably situated orchards the crop was, as a result, practically a failure.

Manuring Apple Trees.—This test was continued on lines similar to previous years. Accumulated results over several years must be obtained before any definite pronouncement can be made on the various systems adopted.

7. Marketing.

The period under review marks an important stage in the development of the Northern Ireland poultry industry. It has provided a further test of the principles upon which the Marketing of Eggs Act is based, a test from which they have emerged satisfactorily. It has shown that the community whose interests are concerned is prepared to co-operate generously with the Ministry in its efforts on behalf of the industry, and has provided much valuable experience from which it has been possible to determine in greater detail the nature of the conditions which are most suitable for the better organisation of the trade.

The factor which carries most weight in the framing of the conditions to be applied to the wholesale trade of Northern Ireland is, of course, the competition amongst various countries supplying the British Market. This competition grows keener—not only is every supplying country devoting greater attention to the quality of consignments sent forward, but there is evidence that the agricultural community in Great Britain is awakening to the opportunities, so long ignored, which the home market offers. A successful outcome to the movement now on foot to organize the home trade of Great Britain will, of course, add to the problems of other countries competing in the same market, but even at the moment there is clearly a necessity for making arrangements for further improvements in the marketing of our produce.

Economic conditions in Great Britain severely handicapped Northern Ireland traders during the past year. The sudden dislocation of transit facilities in May completely disorganized the normal flow of exports at a time when alternative outlets, such as cold-storing, were closed and, occurring when prices normally show an upward tendency, had the effect of lowering the general standard of quality. Further, with continued industrial depression there was less demand for high quality eggs. Despite these difficulties there is evidence that the reputation of Northern Ireland eggs has improved in the important consuming centres in Great Britain.

Licences.

The number of licences issued by the Ministry is now 1,936, being an increase of 218 during the year. It is now safe to assume that practically every trader engaged in the trade to any material extent holds the Ministry's licence. Cases of suspected unlicensed

trading which have been brought to the Ministry's notice generally proved to relate to traders in a small way who either obtained the necessary licence or discontinued their wholesale dealings. It was, however, necessary to take proceedings against four merchants for breaches of the licensing provisions of the Act. Convictions were secured in each instance, fines as heavy as £4 being imposed. In addition, convictions were obtained against two merchants for continuing to conduct wholesale dealings after their licences had been withdrawn.

Compliance with Rules.

It may be of interest to examine the general standard of observance of the several conditions which are prescribed for wholesale dealers in regard to their business. While as a rule traders have made honest efforts to comply with the prescribed conditions the Ministry was constrained to withdraw 24 licences during the year. Where the interests of the whole industry are at stake the Ministry could not afford to allow the good work of the majority to be spoilt by a few recalcitrants. These licences were suspended or revoked only after it became obvious that the holders were not prepared to make a serious effort to comply with the Ministry's regulations.

Premises.

Much has been done to improve the premises used by wholesale dealers for the purposes of their trade, and, generally speaking, the importance of the conditions as to adequacy of accommodation, cleanliness and sanitation is now more fully appreciated. The Ministry has been careful to avoid, where possible, committing merchants to expensive alterations, but by steady pressure has been successful in bringing about gradual improvements.

It was obviously impossible to standardize premises, but in response to a request from the trade the Ministry furnished to each wholesale dealer an illustration of a suitably organized egg store as a guide where improvements in premises were contemplated.

Dirty Eggs.

On the whole less progress than was hoped for was made in improving the standard of cleanliness, but towards the end of the year the situation became more hopeful than at any time since the commencement of the Act. Traders in Great Britain made it quite clear that they wanted clean eggs, and licence holders realized that, if they are to succeed, they must set themselves the task of meeting this demand. Further progress in this direction, however, must be looked for from the poultry-keeper rather than from the wholesale dealer. The latter is subject to heavy penalties for passing through his hands eggs which are soiled, stained or dirty, and pressure brought to bear by him upon his suppliers has

had some effect. The Ministry has supplemented the efforts of the merchants by the issue of leaflets outlining simple precautions, the observance of which would secure cleanliness, but the competition of unscrupulous merchants and of persons purchasing for their own retail trade (and free from the conditions which apply to wholesale dealers) has undone much of the good work of progressive merchants. It must be admitted too, that eggs were washed in some instances on the farm or by merchants willing to take the risk, and that the presence of such eggs on the British market was the subject of unfavourable comment by cross-channel merchants. The whole question has been receiving the Ministry's careful consideration and, as will be seen later, steps are being taken (through the medium of an Amending Bill) which it is hoped will lead to improvements in this important aspect of the trade.

Testing.

No merchant seriously concerned with the success of his business desires to supply his customers with eggs which are not perfectly fresh. His position is, however, not enviable when eggs are overheld by some of his suppliers, and it must be admitted that for a period this was the case. When exporting recommenced after the general strike the quality of consignments was poor in many instances, and despite the pressure which the Ministry brought to bear on the merchants, some time elapsed before an improvement was made. The root of the trouble was, of course, the holding up of supplies—a natural tendency in the circumstances as prices fell to an abnormally low level.

The standard of freshness laid down by the Ministry is now well understood by the trade, and greater proficiency in testing, gained from experience and from the assistance of the Ministry's officers, is now to be found.

Grading.

On the soundest of advice the Ministry has adhered to the principle of close grading. The conditions of the British market call for it, if the high class trade is to be retained. Quite recently an important pronouncement on the subject was made by the Linlithgow Committee which examined the whole question of the egg trade in Great Britain.

The report of that Committee states :—

> "Standardisation is a first principle of modern commerce. It enables goods to be bought and sold on the faith of their description; it renders valid a comparison between lot and lot and between market and market; it is the essential foundation of advertisement."

The experience of progressive merchants in Northern Ireland supports this dictum.

Cases and Packing.

In the matters of packing, collection in "filler" or "section" cases, and marking of cases with prescribed markings, action was required by the Ministry in some instances to ensure compliance with the Rules, but on the whole the standard of observance of the prescribed conditions was maintained at a fairly high level.

Changes in Rules.

By the spring of the year evidence had accumulated that some alterations in the conditions prescribed in the Rules were desirable. Revised Rules (Statutory Rules and Orders No. 28, 1926) were, accordingly, published on the 19th March, 1926. The main features of the amended Rules are as follows :—

Premises.

Many cases were investigated where a merchant had purchased substantial quantities of eggs at a market and, so far as could be judged from their appearance, the eggs were in course of preparation for despatch. As, however, no equipment for the proper testing or grading of the eggs had been provided by the merchant it was obvious that the terms of the Rules in these matters could not have been strictly complied with. Enquiries as to the destination to which it was proposed to send the eggs generally elicited the information that they were being forwarded to the merchant's headquarters for rehandling. On the other hand it was often found from enquiries made at the local railway station that numbers of cases were being forwarded to addresses in Great Britain by the same merchant and there were good grounds for believing that these cases were the same as those previously inspected in the market place.

To meet this situation the Ministry prescribed that merchants should register their premises according to the uses to which which they were put, and the following classification was adopted.

"Class A."—Premises in which eggs are tested, graded and packed in accordance with the Rules. These premises shall be reserved solely for such business.

"Class B."—Premises used by wholesale dealers for the purposes of their trade other than premises described above as Class A. premises.

Collection Cases.

Instances had come under notice where new No. 3 cases had been taken out for the purpose of itinerant collection and after the collector had made a rough selection of the eggs as they were supplied to him, the cases were marked and despatched to Great Britain without further rehandling. Cases used for itinerant collection must now be marked "Collection Only" and, accordingly, cannot be used for the export of eggs.

Testing.

In substitution for the Rules in regard to "quality basis" sales, it was prescribed that eggs may be sold by one wholesale dealer to another without being tested, but the *seller* was made responsible for ensuring that the eggs were fresh. Any collector who is in a position to satisfy himself absolutely, without testing, that all eggs disposed of by him are fresh is not now obliged to test, but should he be found disposing of eggs which are stale he is liable to the penalties under the Act, i.e, to the suspension or revocation of his licence.

Grading.

A minor revision affecting the grades allowable was made early in 1926. A conference between representatives of the trade in Northern Ireland and Great Britain was held at the Royal Ulster Agricultural Society's Show at Balmoral on Thursday, the 27th May, 1926, for the purpose of discussing more fully the whole question of grading. The merchants present at this confeeence were unanimous in recommending that the Ministry should adopt the following grades on the understanding that guaranteed weights should be given :—

Grade 18 lb. for eggs weighing 18 lb. per 120.
,, 17 ,, ,, ,, ,, 17 ,, ,, ,,
,, 15½ ,, ,, ,, ,, 15½ ,, ,, ,,
,, 14 ,, ,, ,, ,, 14 ,, ,, ,,
,, "Smalls" for eggs too small for inclusion in the 14 lb. grade.

The Ministry, after considering carefully the arguments put forward in support of the recommendations made by this conference and the result of exhaustive inquiries on both sides of the channel, decided to adopt the following grades in substitution for the grades detailed in the then existing Rules :—

Grade 18 lb. Eggs of uniform size weighing 18 lb. per 120. No twelve eggs in any 120 to weigh less than 28 ozs.

Grade 17 lb. Eggs of uniform size weighing 17 lb. per 120. No twelve eggs in any 120 to weigh less than 26½ ozs.

Grade 15½ lb. Eggs of uniform size weighing 15½ lb. per 120. No twelve eggs in any 120 to weigh less than 24 ozs.

Grade 14 lb. Eggs of uniform size weighing 14 lb. per 120. No twelve eggs in any 120 to weigh less than 21½ ozs.

Grade "Smalls." Eggs too small for inclusion in the 14 lb. grade and weighing less than 21½ ozs. per dozen.

The first of these grades was included at the request of the representatives of a few districts where it was claimed that a high

proportion of very large eggs was produced. As regards the last grade (Smalls), the Ministry does not encourage their despatch to the markets in Great Britain. Thus in effect there are only three main grades for export, viz., 17 lb., 15½ lb. and 14 lb.

The amended Rules came into operation on the 2nd August.

Further Legislation.

Apart from the changes in the Regulations, the necessity for extending the scope of the Act to include certain features which, for reasons of policy, were omitted therefrom in the first instance, had become increasingly obvious with the development of the trade. An Amending Bill was accordingly drafted and was introduced in the Parliament of Northern Ireland.

The provisions of this Bill fall into two groups. In the first are the new principles (a) empowering the Ministry in cases where there is active competition for supplies between retailers and shippers to apply to the former rules similar to those prescribed for the latter, (b) placing on the producer a share in the responsibility for the cleanliness and freshness of the eggs and (c) prescribing purchase by weight. The second group is concerned with improvements in the existing administrative machinery. So far as retailers are concerned it was at the outset made clear that it was not intended to bring the operations of retail traders generally within the scope of this legislation. They will be affected only so far as the general interests of the industry demand and in cases where otherwise anomalies would result. For instance, where retailers go to the markets for supplies they should not be allowed to purchase eggs that would be rejected by shippers because of uncleanliness or staleness or to collect their eggs in the open as they can do now, even in wet weather, while the wholesale dealers with whom they compete must have covered accommodation. Power is, therefore, sought to enable the Ministry to bring retailers within the scope of such Regulations as may be found to be desirable.

It is proposed to make it an offence for any person to sell or offer for sale unclean or stale eggs. While seasonal fluctuations continue to occur in egg prices, there will always be some inducement to hold up supplies on a rising market. The proposal will discourage over-holding by making the sale of stale eggs an offence against the Act. It is of the utmost importance to ensure prompt marketing at all times whether prices are rising or falling.

Simple precautions to ensure cleanliness have been repeatedly brought to the notice of poultry-keepers, and no excuse whatsoever can be found for offering dirty eggs for sale. As to the sale of unclean or stale eggs the provision will, of course, affect every person interested in the egg trade of Northern Ireland, whether producer, wholesale dealer, or retailer. The task of ensuring compliance is obviously too great for the inspectional

staff available, and the Bill provides for assistance in the matter of inspection being given by the local authorities charged with the administration of the sale of Food and Drugs Acts, 1875—1907.

The system of purchase by weight has long been considered desirable, and has now been practised widely enough to demonstrate fully its advantages. Poultry-keepers have not at present sufficient incentive to produce and market large eggs, as they are paid much the same price whether the eggs are large or small. The consequence is that in many cases the larger eggs are consumed at home whereas the aim should be to market the biggest and best if top prices are to be realized in the British Markets. Further, the areas in Northern Ireland where purchase by weight has been in operation for some time are conspicuous for the size of the eggs produced. Purchase by weight is of particular importance to wholesale dealers who are compelled by the Rules to sell their eggs in grades which are guaranteed to be certain weights. In other words, they are now selling by weight and purchasing by the dozen, and in doing so must have difficulties in reconciling the two methods.

As to the provisions designed to improve the administrative machinery, it will be remembered that under the Act of 1924 a licence is issuable on the applicant undertaking to comply with the prescribed conditions, and over 1,900 licences were issued in this way. It is reasonable to require that new applicants should have their premises and equipment inspected before a licence is issued rather than afterwards, and power is sought to this effect.

A further important point is that at present there is nothing to prevent the Ministry being forced to grant a licence to a person whose licence has just been withdrawn. This is so obviously in disagreement with the spirit of the Act that powers of discretion are being sought in the matter without definitely excluding the issue of a new licence to such an applicant.

It has been quite common to find purchasers of substantial quantities of eggs at different markets who, when questioned as to their trading, have posed as acting on behalf of licence holders. Enquiries have usually failed to elucidate the position. The simple expedient of identification by means of certified copies of licences is proposed as a remedy for this weakness in the Act. It is not intended to make this provision applicable to circumstances where identification is simple, e.g., where a merchant owns or occupies premises and where enquiry can be made.

Under the Act of 1924, owners and occupiers of premises registered for the purpose of cold-storing, preserving or pickling of eggs must furnish the Ministry, when required, with returns as to the deposit, delivery and despatch of any eggs in their premises. The information so furnished has been extremely useful in suppressing fraudulent practices in the sale of cold-stored eggs. By placing on every person handling cold-stored, preserved or pickled eggs, the duty of furnishing the Ministry

with information as to his dealings in such eggs, the Ministry would be in a stronger position to prevent fraud. A provision to meet this point has accordingly been included in the Bill.

The only remedy under the present Act for breaches of the Rules is the suspension or revocation of licences. This is obviously too drastic a course to take for isolated offences, and the Ministry is thus faced with either allowing such offences to go unchecked or applying a much too severe penalty. More elasticity is necessary from the point of view of the wholesale dealer as well as from that of the Ministry, and it is now proposed that offences against the regulations should be brought before the ordinary courts of law. In this proposal for an alternative penalty, the Ministry has the support of the accredited representatives of the trade, as the suspension of his licence involves loss of trade connexions to a wholesale dealer. In order, however, to ensure uniformity in the penalty for offences against the regulations, provision for minimum fines of £1, £3, and £5 for the first, second and third offences has been inserted in the Bill.

When the original Act was being drafted, the Ministry was aware of the desirability of taking powers to inspect consignments in transit. The then existing constitutional limitations on legislation in matters of this kind have now been removed by the transfer of the Council of Ireland Services from the Imperial Secretary's Department to the Government of Northern Ireland.

It will readily be admitted that the closest supervision must be given to the export trade and that inspections at merchants' premises do not necessarily give a true indication as to the condition in which consignments are forwarded. Moreover, it was repeatedly found that certain merchants misled Inspectors in regard to consignments by stating that cases under examination would be rehandled before despatch but, as soon as the Inspector had left the premises, the cases were sent forward without further rehandling. The power proposed to be taken is less stringent than any similar regulations in force in countries where the export trade is subject to control. It is, of course, not proposed to interfere unduly with the expeditious transit of consignments.

Sale of Unsound Eggs.

Under Section 5 of the Marketing of Eggs Act the provisions of the Public Health Acts relating to unsound meat are made applicable to eggs throughout Northern Ireland. Further valuable assistance in its efforts to improve the quality of eggs marketed in Northern Ireland was given to the Ministry by Local Sanitary Authorities. Of the sixty-four Authorities, fifty now employ Sanitary sub-officers qualified to test eggs for freshness, and the inspections made by these officers in shops and in the markets have had a most salutary effect. Proceedings for the exposure for sale of unsound eggs were instituted in fourteen cases, and fines ranging from ten shillings and costs to £10 and costs were imposed.

Marketing Assistance.

The Ministry continued to afford exporters all possible assistance in obtaining markets for their produce, and introduced many merchants to reliable cross-channel buyers. Although prices returned were lower than those in previous years information from various centres shows that Northern Ireland eggs commanded higher prices than those paid for eggs from other countries. This gratifying result must be attributed to improvements in quality and appearance of Northern Ireland eggs generally.

In protection of the reputation of Northern Ireland produce the Ministry found it necessary to correct certain erroneous statements to which considerable publicity had been given in the press in Great Britain.

Railway Rates and Transit.

Before the Ministry finally decided to seek powers to inspect consignments of eggs in transit the matter was fully discussed with representatives of the various carrying companies in Northern Ireland at a conference held on the 25th June. The proposals were carefully examined from the point of view of practical application and the representatives of the carrying companies were satisfied that no undue interference with the expeditious transit of consignments would be involved.

As in previous years the Ministry has given considerable attention to cases of damage or delay which had occurred in the forwarding of consignments of Northern Ireland produce to the British market, and while such cases still occasionally come under notice there is no doubt that increased care in handling and improved methods in packing have led to a decrease in the number of complaints received.

Stabilization of Pork Prices.

The prices paid for pork in Ulster markets continued to be carefully watched on behalf of the Ministry. Admittedly the fluctuations from time to time have been acute and occasionally quite unexpected. Some time ago at conferences summoned by the Ministry the whole question of stabilization was fully gone into by representatives of the Ulster Farmers' Union, the Ulster Agricultural Organisation Society and the bacon-curing interest. Several further resolutions were received on the subject in the period covered by this report. The Ministry is satisfied that the present system of marketing pork in the absence of regular price quotations by buyers is calculated to create a feeling of uncertainty among pig feeders, and would welcome the issue of advance quotations by buyers, if such a course is feasible, as it would undoubtedly encourage the rearing and fattening of pigs. The fixing of prices at stated intervals is not, however, regarded as practicable except on a voluntary basis. Official machinery to that end would certainly be cumbersome and probably ineffective. Apart from

fluctuations resulting from local conditions, consideration would have to be given to world variations in prices which could not be foreshadowed with any degree of accuracy.

Following the issue (Summer, 1926) of an Order by the Imperial Ministry of Agriculture prohibiting the importation of animal carcases from the Continent much attention was given to the possibility of the development of a fresh pork trade with Great Britain. In suitable cases the Ministry offered to give advice as to (a) the killing and dressing of the pigs, (b) the general requirements of the markets, and (c) the best methods of packing. In the Autumn, too, there was, in several districts, a tendency to sell fat pigs by live weight. These two factors will no doubt tend towards the stabilization of pork prices.

Horticultural Produce—Sales on Commission Bill.

A Bill, dealing with the following matters relating to the sales on commission of horticultural produce, is at present before the Imperial House of Commons :—

(a) Percentage and flat rate charges for commission.
(b) Averaging returns.
(c) The returning of lower prices than those actually realised.
(d) Salesmen acting as merchants.
(e) Method of rendering sales' accounts to growers.

The Bill is regarded as practically an agreed measure and when considered by the Horticultural Advisory Council of the Ministry of Agriculture and Fisheries, a resolution was passed recommending that the Ministry make representations with a view to the extension of the Bill to Northern Ireland. It was not possible to extend the Bill as recommended by the Council, but the case could be met by the introduction in the Parliament of Northern Ireland of legislation on parallel lines.

At a conference held in Portadown in August, of fruit growers and wholesale fruit merchants, a resolution was passed urging that a Bill on these lines should be promoted by the Ministry. A similar resolution was also adopted by the county Armagh committee of agriculture. The Ministry has the question of initiating such legislation at present under consideration.

Merchandise Marks (Imported Goods) Bill, 1926.

During the year a Merchandise Marks Bill, embodying principles different from those upon which previous Bills were based, was introduced in the Imperial Parliament. The new provisions contemplate, following an inquiry by a special committee, the issue of a statutory order that any particular class of imported goods shall not be sold unless a clear indication of origin is given. The Bill has passed through the Committee stage, and further stages will be taken during the autumn session.

So far as the Ministry is concerned the peculiar needs of Northern Ireland have been satisfactorily met. Northern Ireland

is included in the scope of the Bill, but the proposals will not apply to farm produce carried or driven by a farmer or his servants from the Irish Free State into Northern Ireland in the course of his business as a farmer. In matters affecting the appropriate department Northern Ireland is represented by the Secretary of State for the Home Department, who will act jointly with the Secretary of State for Scotland and the Ministry of Agriculture and Fisheries.

Under the Bill, if enacted, local authorities, empowered to appoint Analysts for the purpose of the Sale of Food and Drugs Acts, 1875-1907, may execute the provisions so far as food stuffs are concerned. At the instance of the Ministry an amendment in the following terms was included :—

> " The Governor of Northern Ireland may, by Order in Council, direct as respects any local authority in Northern Ireland, that the powers of the authority under this section shall be exercised by the Ministry of Agriculture, Northern Ireland, instead of by the authority."

Sale of Food and Drugs Acts, 1875—1907.

The extent of the activities of local inspectors under the Acts during the year ended 30th June, 1926, in regard to samples of milk, buttermilk, butter, margarine and cheese is demonstrated by the following tables :—

Nature of sample	Number of samples taken	Number of prosecutions	Number of convictions	Penalties imposed (exclusive of costs)
Milk	2,478	112	72	£116 11 6
Buttermilk	736	75	69	82 16 7
Butter	1,185	69	58	148 8 6
Margarine	424	—	—	—
Cheese	376	—	—	—
Totals	5,199	256	199	£347 16 7

There is a slight decrease in these figures as compared with those for the previous twelve months. During that period 5,273 samples were taken, 309 prosecutions instituted and 222 convictions obtained, the penalties imposed amounting to £378.

On the 30th June, 1926, the number of premises registered under Section 9 of the Margarine Act, 1887, and Section 7 (4) of the Sale of Food and Drugs Act, 1899, for wholesale dealings in margarine was 141. In the twelve months ended on that date two registrations were effected, viz., one each in the counties of Armagh and Londonderry.

The present distribution of such premises is as follows :—

County Borough of Belfast	103
,, ,, ,, Londonderry	10
,, Antrim	*11
,, Armagh	7
,, Down	6
,, Fermanagh	1
,, Londonderry	2
,, Tyrone	1

*Includes one margarine-cheese factory.

The premises registered as butter factories under Section 1 of the Butter and Margarine Act, 1907, at present number 13, no registrations having been effected or cancelled during the year under review.

One-hundred-and-sixty-seven fancy or descriptive names were approved by the Ministry under Section 10 of the Butter and Margarine Act, 1907, for use in connexion with margarine. In thirty-five cases approval was withheld.

8. Agricultural Schemes.

(a) Poultry-keeping.
(b) Butter-making.
(c) Horticulture and Bee-keeping.
(d) Prizes for Cottages and Small Farms.
(e) Subsidies to Agricultural Shows.
(f) Horse-breeding.
(g) Cattle-breeding.
(h) Registration of Dairy Cattle.
(i) Milk Recording Associations.
(j) Swine-breeding.
(k) Sheep-breeding.
(l) Goat-breeding.
(m) Creameries.

The main features of each scheme are summarized briefly in the following pages; copies of all the schemes are published separately, and may be obtained free of charge on application to the Ministry. In order to ensure that the operations of the schemes will result in the agricultural community generally deriving the maximum benefit, the Ministry is assisted and advised in their revision—which takes place annually—by a number of advisory committees, the membership of each consisting of prominent practical agriculturists with special knowledge of the subject relating to the scheme under review. In addition there is a Consultative Committee, on which is a representative of each county committee of agriculture, whose special function is to co-ordinate the work of the advisory committees. The schemes are

thus subject to amendment from year to year in accordance with the above-mentioned committees' recommendations, but the basic principles remain unchanged, and they may be briefly outlined as follows :—

Provision is made for the employment of itinerant instructors in agriculture, horticulture, poultry-keeping and butter-making; for the subsidizing of premium sires with the object of promoting and improving the general stock of the country; for the giving of assistance to agricultural shows; for the provision of prizes for well-managed farms and neatly kept cottages; for the encouragement of milk recording and the practice of mating the best milkers with high class dairy bulls and for improving the quality and marketing of dairy produce in connexion with creameries and cheese factories.

In the majority of schemes the county committee is responsible for all operations as far as local administration is concerned, but in cases where this procedure is not practicable and where centralization is obviously desirable the onus of administration rests directly on the Ministry.

The cost of financing the ordinary county schemes was defrayed from funds provided by rates levied locally and from the Ministry's Vote.

(a) Scheme of Instruction in Poultry-keeping.

Under the provisions of the above-mentioned scheme instructors in poultry-keeping are employed. Their whole time is given towards promoting improvement in poultry-keeping. The scheme is in operation in each county, and the county committee concerned is responsible for seeing that the instructors' time is fully and usefully occupied. In all, ten instructors were employed during the year under review, seven of whom acted in the dual capacity of instructors in poultry-keeping and butter-making. The instructors' duties are varied and of a general nature, but principally they are concerned with disseminating expert information when required on all matters pertaining to poultry-keeping. They are also required to deliver lectures and conduct classes at suitable centres; to inquire into and report upon outbreaks of disease; and to carry out all the necessary work in connection with the selection and inspection of poultry stations.

The following table illustrates to some extent the work covered by this scheme during the period under review :—

County	No. of instructors	No. of lectures	No. of visits	No. of courses of instruction given	No. of daily classes in these courses	No. of pupils on class attendance register
Antrim	2*‡	2	1024†	1	15	18
Armagh	1 ‡	7	532†	2	25	36
Down	2 ‡	1	1198†	4	61	73
Fermanagh	1	—	700	2	30	33
Londonderry	2 ‡	1	998	5	67	79
Tyrone	2	—	850	4	60	76
Totals	10	11	5302	18	258	315

*One instructor did not take up duty until the 25th May, 1926.
†Inclusive of visits in connexion with the scheme of instruction in butter-making.
‡Also employed under the scheme of instruction in butter-making.

A poultry station scheme is also in general operation, the main object of which is the improvement of farm poultry whereby poultry keepers—especially those in backward districts and those engaged in poultry-keeping in a small way—may secure eggs from high grade stock at a reasonable price. Provision is made in the scheme for three classes of poultry stations, viz., hen and duck stations, goose stations and turkey stations, and sittings of eggs of pure-bred hens, ducks and geese (Embden) may be procured by persons resident in rural districts at prices fixed by the county committees. In the case of hen and duck stations at least 70 sittings of eggs from the station birds must be supplied before the full premium is earned—12 eggs count as a sitting, and the maximum price charged per sitting is 2/6 ; in the case of goose stations 12 sittings of 3 eggs must be distributed to enable the full premium to be paid, and in this case the price must not exceed 3/- per sitting. The mating of turkey hens with approved pure-bred American Bronze turkey cocks is also arranged at a specified fee, usually 1/- per service.

The station holders are carefully selected. Firstly, all the runs and stock of applicants are inspected by the local instructor in poultry-keeping and with the reports thereon before them the county committee make their final selection, due regard being given to the needs of the various rural districts in the county and to the proviso that no new stations shall be established within three statute miles of one another, or within three statute miles of any previously established station which is being continued.

Provision is also made for the payment of additional premiums not exceeding £2 10s 0d to specially selected station holders who undertake, in compliance with specified conditions, to trapnest their birds during the winter months. A copy of the conditions referred to will be found at page 125 of the appendices. During the season under review twenty poultry stations were selected as suitable for trapnesting purposes, and in each case the station holder agreed to fulfil the stipulated conditions. Last season nine trapnesting stations were in operation, so it is apparent that this special feature of the scheme is appreciated by progressive station holders.

Poultry Stations, 1926.

County	No. of egg distribution stations		Sittings of eggs d'tributed (12 eggs per sitt'g)	No of egg d'tribut'n stations (goose)	Sittings of eggs d'tributed (3 eggs per sitt'g)	No. of turkey stations	No. of hens mated
	Hens only	Hens and ducks					
Antrim	19	12	2,935	11	170	33	1,372
Armagh	14	6	1,879	12	169	34	1,288
Down	24	15	4,776	18	227	49	1,677
Fermanagh	17	14	2,679	15	213	31	1,303
Londonderry	16	13	2,329	16	234	27	735
Tyrone	17	14	2,922	21	298	56	2,624
Totals	107	74	17,520	93	1,311	230	8,999

The following table gives the number of sittings of eggs (by breeds) distributed from poultry stations in each county—duck stations are shown separately but are not recognized for premium purposes unless combined with a hen station :—

Poultry Stations Scheme—1926.

Poultry Stations by Breeds.

Hen and Duck Stations.

Breed	Antrim		Armagh		Down		Fermanagh		Londonderry		Tyrone		Total	
	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No of stations	No. of sittings	No. of stations	No. of sittings
Wh. Wyan.	15	1315	9	539	18	2364	14	1019	10	198	18	1351	84	6786
Wh. Leghorn	8	782	6	661	7	736	7	635	6	646	4	490	38	3950
B.P. Rock	1	86	...	...	...	...	1	95	3	189	...	...	5	370
B. Orpington.	1	21	...	...	...	...	...	...	...	...	...	...	1	21
Bl. Leghorn	...	...	...	...	...		1	73	...	..	...	...	1	73
Br. Leghorn	...	...	...	...	2	149	...	...	...	...	3	226	5	375
Bl. Minorca	1	118	2	221	4	416	3	227	3	229	...	...	13	1211
Light Sussex	...	...	1	125	1	112	2	141	...	..	3	369	7	747
R.I Red	5	403	2	233	5	549	1	107	7	863	3	284	23	2439
Ancona	...	...	...	...	1	127	2	228	...	...	...	...	3	355
Ind. Runner	12	210	6	100	13	192	14	154	12	162	12	193	69	1011
Aylesbury	...	...	...	...	2	131	...	...	1	42	1	9	4	182
Totals	...	2935	...	1879	...	4776	...	2679	...	2329	..	2922	...	17520

The expenditure in each county in respect of premiums paid to holders of stations under the poultry scheme in 1926 was as follows :—

County	Hen and duck stations	Goose stations	Turkey stations
	£ s. d.	£ s. d.	£ s. d.
Antrim	221 12 0	21 1 1	90 15 0
Armagh	140 0 0	24 0 0	85 0 0
Down	286 10 0	38 0 0	126 7 6
Fermanagh	215 18 0	76 5 0	29 13 4
Londonderry	179 15 8	31 3 4	67 10 0
Tyrone	211 14 0	40 10 0	140 0 0
Totals	1,255 9 8	230 19 5	539 5 10
Totals for 1925	1,110 0 6	£177 7 9½	£550 14 6

Poultry Demonstration Farms.—These farms are three in number, and full particulars relating thereto were given in the Ministry's fourth annual report. The Ministry's primary object in selecting and subsidizing these farms was to demonstrate the commercial possibilities of poultry-keeping on up-to-date lines, and the information obtained from the owners regarding the general management of the farms it is confidently hoped will prove of great value to persons intending to specialize in commercial poultry-keeping. In addition the farms serve as a training ground for selected pupils from the Ulster Dairy School, besides being open to inspection by organized parties of visitors during the year. During the period under review a pupil has been in training at two of the farms, the respective owners being Lieut.-Col. F. S. N. Macrory, D.S.O., Ardmore Poultry Farm, Limavady, County Londonderry, and Miss D. Robertson, Dogleap, Limavady, County Londonderry. It might be added that the owner of the other subsidized farm is Mr. George C. Downey, Helen's Bay, County Down.

(b) *Scheme of Instruction in Butter-making.*

As the name implies this scheme provides for the giving of instruction and advice in all matters connected with butter and cheese making in the farmers' homes and to residents in the county requiring information on these subjects. Moreover, demonstrations are given illustrating the most up-to-date methods of making butter and cheese on the farm, and classes are conducted at suitable centres at which tuition is afforded to local residents who desire to become proficient in home butter and cheese making.

The scheme is in operation in counties Antrim, Armagh, Down and Londonderry, and seven instructors were employed. The work performed during the year under review is summarized in the following table :—

County	No. of instructors	No. of lectures	No. of visits to private dairies	No. of courses of instruction given	No. of daily classes in these courses.	No. of pupils on class attendance register
Antrim	2†	1	*	3	40	39
Armagh	1	1	*	1	16	9
Down	2	1	*	3	49	32
Londonderry	2	—	53	3	43	35
Totals	7	3	53	10	148	115

*Included in number of visits paid in connexion with the scheme of instruction in poultry-keeping.
†One instructor did not take up duty until the 25th May, 1926.

Apart from home butter-making the manufacture of butter on a large scale at creameries is carefully fostered by the Ministry, and a brief resumé of its activities in this sphere will be found at page 75 of this report.

(c) *Scheme of Instruction in Horticulture and Bee-keeping.*

This scheme when in general operation provides for the appointment of at least one instructor in horticulture and bee-keeping in each county in Northern Ireland. The instructors' duties mainly are to visit gardens and orchards and give practical demonstrations therein on the spraying, planting, grafting and pruning of fruit trees; to conduct experiments and demonstrations; to deliver lectures on horticultural subjects; to visit apiaries and to give instruction in the principles and practice of modern bee-keeping, and to advise farmers, cottagers and all residents in the county requiring information on subjects in connexion with horticulture or bee-keeping. Instructors are also required to give instruction in and demonstrations on the grading, packing and marketing of fruit, and, further, an instructor may also be required to act as judge in connexion with the scheme of prizes for cottages and small farms in a county other than that in which he acts as instructor or of which he is a native. Particulars of the work performed by the instructors are given in the following table :—

County	No of instructors employed	No. of visits & demonstrations	No. of lectures delivered	Total attendance at lectures	No. of demonstration plots	No. of vegetable plots
Antrim	2	1,692	16	800	19	35
Armagh	2	1,541	15	131	10	31†
Down	2	1,665	16	192	13	51
Fermanagh	1	1,020	8	70	12	12
Londonderry	1	914	10*	193*	34	2
Tyrone	1	646	31	400	39	18
Totals	9	7,478	96	1,836	127	149

*Practical demonstrations. †Includes 20 potato plots.

Owing to the success of the special course of instruction in horticulture which was held under the auspices of the Ministry in the Loughgall district of county Armagh in 1925, a similar class was held in the same district this year, and the attendance and results were quite satisfactory.

It is of interest to note that the apple orchard competitions, which were resuscitated last year and to which special reference was made in the Ministry's fourth annual report, were carried out again this year. These competitions are designed to give a much-needed stimulus to fruit growing, and were conducted under the auspices of the Ulster Horticultural Society, the judging taking place during the month of August. The Ministry, as in the previous year, gave permission to one of its inspectors to act as judge, and generous support was again forthcoming from the county committees of agriculture, which made grants as follows :—

County Antrim	...	... £20
County Armagh	...	... £20
County Down	...	... £15
County Tyrone	...	... £10

(d) *Prizes for Cottages and Small Farms.*

This scheme was in operation in counties Antrim, Down and Fermanagh during the period under review, and the judges in each case were horticultural instructors from adjacent counties. This year no classes for small farms were provided in any of the counties, the competition being solely confined to cottages. In making their awards the judges pay special regard to the following points :—

(a) Cleanliness of the cottages ;
(b) Cultivation of garden ;
(c) Arrangement of manure heap ;
(d) General management and care of live stock, and
(e) Care of bees.

The following table shows the number of holdings entered for the competition, together with the number and total value of the prizes awarded :—

County	Number of entries			No. of prizes awarded in each class			Total amount expended in prizes
	Class I. cott-ages	Class II. Ex-servicemen	Class III. Championship	Class I.	Class II.	Class III.	
							£ s. d.
Antrim	90	27	11	36	6	4	63 0 0
Down	95	...	9	46	...	4	125 10 0
Fermanagh	18	7	...	10	5	...	30 0 0

(e) *Subsidies to Agricultural Shows.*

Under the provisions of this scheme county committees are empowered to make contributions to the funds of agricultural societies in their respective counties for the purpose of assisting in the promotion of agricultural shows which have a direct bearing on the problem of improving agriculture in general and live stock in particular. In addition, small grants are made to societies with a view to encouraging the holding of ploughing and other skilled labour competitions, and under certain conditions subsidies may also be granted to societies established for the purpose of obtaining for their members analyses of manures and feeding stuffs, seed tests, etc. This scheme was in general operation during the year under review and grants were made as follows by the county committees :—

County	Amount allocated by county committee	Number and value of subsidies estimated to be paid in respect of:			
		Agricultural shows		Skilled labour competitions (ploughing matches, &c.)	
	£	Number.	Value. £ s.	Number.	Value. £ s.
Antrim	305	5	305 0	2	10 0
Armagh	136	2	100 0	4	30 0
Down	400	4	212 10	2	10 0
Fermanagh	200	3	200 0	—	—
Londonderry	115	4	90 0	3	21 0
Tyrone	260	7	250 0	2	15 0
Totals	1,416	25	1,157 10	13	86 0

Special contributions were also made directly by the Ministry to the funds of the following societies with a view to encouraging them in extending the operations carried out under their auspices :—

Ulster Farmers' Union (Educational Committee)	£800
Royal Ulster Agricultural Society ...	£500
Ulster Agricultural Organisation Society, Ltd. ...	£200
North-West of Ireland Agricultural Society ...	£100
Ulster Horticultural Society	£75
Ulster Goat Society	£50
Ulster Ram Breeders' Association	£30

(f) *Horse-breeding Scheme.*

This scheme, which supplements the Horse Breeding Act referred to elsewhere in this Report, has for its object the improvement of horse-breeding in Northern Ireland by means of the provision of (a) premiums for stallions of a high degree of excellence and (b) subsidies to secure the introduction of high-class sires into districts which are inadequately supplied with such animals. The scheme was again in operation in each county

during 1926, and its terms were identical with those of the 1925 Scheme.

As in previous years, the suitability of stallions for the award of premiums was determined at an Exhibition held in February, 1926, in the grounds of the Royal Ulster Agricultural Society at Balmoral. The competing animals were those which had been offered for licence under the Horse-Breeding Act, 1918, and were as a result of the inspections for licences held in October, 1925, considered to be of outstanding merit and *prima facie* up to premium standard. Two classes were provided—one for Thoroughbreds, the other for Clydesdales—and the stallions in each county were placed in order of merit in their respective classes. Altogether 13 Thoroughbreds and 22 Clydesdales were exhibited. The several county committees, who make the final choice of stallions for the award of premiums, selected from the list of eligible animals all save one Thoroughbred, and a premium was earned during the season in each case. In addition to these animals one Thoroughbred and one Clydesdale, which were imported by the Ministry from Great Britain subsequent to the Exhibition, were selected for premiums by county committees.

Prizes to the total value of £100 were offered at the Exhibition by the Royal Ulster Agricultural Society for the seven best stallions of each breed.

The native-bred Clydesdale stallion, "Aughenfoot" (breeder Mr. William Shannon, Coshquin, Londonderry) secured first prize at the Exhibition, and a silver medal was awarded to Mr. Shannon by the Ministry.

The usual arrangements were made under which the Railway Companies having termini in Belfast carried the stallions free of charge in one direction, the cost of carriage in the other direction being defrayed by the Ministry.

A Register was published giving particulars of the 38 premium stallions located in the several counties during the year.

The following table shows the amounts allocated and expended by the several county committees together with the distribution of premiums in the various counties :—

County	Amount allocated by county committee	Amount expended by county committee	Number of premiums paid by county committee in respect of			Total
			Thoroughbred stallions	Clydesdale stallions	Irish draught & half-bredstallions	
Antrim	£440	£352	2	6½	—	8½
Armagh	150	150	1	2	—	3
Down	600	527	6	4½	—	10½
Fermanagh	180	180	1	2	1	4
Londonderry	300	240	1	4	—	5
Tyrone	320	320	2	4	1	7
Totals	£1,990	£1,769	13	*23	2	*38

*In certain instances where premium stallions travelled for service in two counties premiums were paid jointly by the committees concerned. Thus, one Clydesdale stallion premium was paid partly by Antrim county committee and partly by Down county committee, and two Clydesdale premiums were paid partly by Antrim county committee and partly by Londonderry county committee. This explains the half-premiums in the above table.

The maximum value of a premium fixed in the scheme for Thoroughbred stallions was £70 and for any other breed £45. The values of premiums adopted by each county committee in 1926 are as follows :—

Breeds of Stallions.

County	Thoroughbred	Clydesdale	Irish draught and half-bred
Antrim	65	35	—
Armagh	70	40	—
Down	60	40	—
Fermanagh	60	40	40
Londonderry ...	60	45	—
Tyrone	60	40	40

The Londonderry county committee made a regulation requiring the mare owner to hand to the stallion owner, prior to the service of the mare, a veterinary surgeon's certificate that the animal was sound. No special regulations were made by any other county committee.

In the following table particulars are given of the number of mares served by premium stallions under the scheme in 1926 :—

County	Mares served by Thoroughbred stallions	Mares served by Clydesdale stallions	Mares served by Irish draught and half-bred stallions
Antrim	147	285	—
Armagh	25	75	—
Down	300	142	—
Fermanagh	36	95	52
Londonderry	58	232	—
Tyrone	42	136	42
Totals	608	965	94

Subsidies were granted by the Ministry towards the purchase of seven stallions for service in districts where suitable sires were required. Loans were also granted to the purchasers of these sires, who were required to undertake to keep the animals for five years in the districts in which they were located. Two Thoroughbred stallions, four Clydesdales and one Half-bred were purchased and placed under these arrangements.

In August, 1926, at Cushendall and Carnlough two Exhibitions were held of the progeny of the Pony stallions which had been introduced into the Glens district of county Antrim in the 1923, 1924 and 1925 seasons. There were five classes as follows at each centre :—

Class I.	Two-year-olds of the Glen Pony type.
Class II.	Two-year-olds not of the Glen Pony type.
Class III.	Yearlings of the Glen Pony type.
Class IV.	Yearlings not of the Glen Pony type.
Class V.	Foals at foot.

Prizes to the total value of £65 were offered by the Antrim county committee. The amount actually paid to the successful competitors was £63. The total number of animals competing in each class was as follows :—

Class 1	8
Class 2	14
Class 3	7
Class 4	6
Class 5	43
Total	78

(g) *Cattle-breeding Scheme.*

This scheme aims at the improvement of cattle breeding in Northern Ireland by the provision of premiums for pure-bred and registered dairy bulls of a high standard. The scheme is administered by the several county committees of agriculture, whose duty it is to select approved applicants for the award of premiums. The breeds of bulls eligible for the award of premiums are as follows :— Shorthorn, Registered Dairy Pedigree Shorthorn, Registered Dairy Non-Pedigree Shorthorn, Aberdeen Angus, Hereford and Galloway.

During the year the Ministry recognized two sales in Northern Ireland for the selection of bulls for premiums under this scheme, viz., The Royal Ulster Agricultural Society's show and sale, and The North-West Agricultural Society's show and sale, both of which were held in March. In special cases selected applicants purchase bulls at the Royal Dublin Society's show and sale. At the shows the Ministry's live stock officers inspect all bulls of the eligible breeds which are of the required age and pass as suitable for premium purposes all animals which are regarded as up to the

required standard. The farmers selected by the county committees of agriculture attend these shows and purchase bulls which have been passed by the Ministry's inspectors.

The maximum value of the premiums offered under this scheme varies according to the breed of the bull. The highest maximum premium, viz., £20, is offered for Shorthorn bulls with milk records on both sire and dam's side, as it is felt that the introduction of such dual purpose animals is of the greatest importance to the cattle breeding industry. It should be noted, however, that undue attention is not paid to the milk records, as animals have to satisfy the inspectors that they are up to a high standard as regards general appearance and conformation before they are provisionally passed as suitable for premium purposes. The maximum premiums offered for the other breeds are as follows :—£17 for Shorthorn bulls with milk records on dam's side only; £15 for pure-bred Shorthorn, Aberdeen Angus and Hereford, and £13 for pure-bred Galloway and registered non-pedigree Shorthorn bulls.

In order to earn a premium the yearling bulls are required to serve at least 30 cows, and older bulls at least 40 cows. The bull may be awarded a premium for three successive seasons, and in special cases the premiums are granted for a longer period. At the end of each season the animals are inspected locally, and if they have proved fruitful and are passed as suitable at the local inspection they may be awarded a premium for a further year if the county committee so decides.

The following table shows the regulations made by the several county committees in connexion with service fees, etc. :—

County	Service Fees	Services		Valuation of holdings of cow owners
		Yearling bulls Minimum No.	Older bulls Minimum No.	
Antrim	2/6 in all cases	30	40	not limited
Armagh	5/- in all cases	30	40	not limited
Down	2/6 where valuation does not exceed £30 5/- where valuation exceeds £30 but does not exceed £100	30	40	not to exceed £100
Fermanagh	2/6 where valuation does not exceed £25 4/- where valuation exceeds £25 but does not exceed £100	30	40	not to exceed £100
Londonderry	4/- in all cases	30	40	not limited
Tyrone	3/6 in all cases	30	40	not limited

The amounts allocated by the county committees for premiums to bulls and the estimated expenditure for each county are as follows :—

County	Amount Allocated	Estimated expenditure	Total number of bulls standing for premiums in county
Antrim	£1,400	£1,345	87
Armagh	704	686	45
Down	1,550	1,531	99
Fermanagh	550	554	34
Londonderry	540	531	32
Tyrone	1,200	1,116	73
Totals	£5,944	£5,763	370

Particulars of the breeds, etc., of bulls selected for premiums under the scheme in each county are shown in the following tables :—

County	Pure-bred registered dairy shorthorn		Registered dairy non-pedigree shorthorn	Shorthorn	Aberdeen Angus	Galloway	Total
	Dam and sire registered	Dam only registered					
Antrim	9	18	1	42	2	15	87
Armagh	1	6	3	35	—	—	45
Down	8	14	4	54	19	—	99
Fermanagh	5	4	2	13	10	—	34
Londonderry	7	9	1	12	3	—	32
Tyrone	9	8	3	40	13	—	73
Totals	39	59	14	196	47	15	370

County	Number of bulls retained for service from 1925	Number of bulls provisionally awarded premiums for the first time in 1926	Total number of bulls approved for premiums in 1926
Antrim	52	35	87
Armagh	26	19	45
Down	61	38	99
Fermanagh	22	12	34
Londonderry	17	15	32
Tyrone	37	36	73
Totals	215	155	370

A new feature in the scheme, which was adopted in counties Fermanagh and Tyrone, was the purchase by the county committee of bulls for resale at reduced prices to selected applicants in the poorer districts, the object being to assist breeders in districts where it had been found difficult to obtain applicants willing to purchase premium bulls. The system adopted was as follows :— the committee purchased suitable bulls and supplied same to selected applicants at one-third of the cost price, the amount to be paid to the committee in three annual instalments. The county Fermanagh committee of agriculture supplied three bulls under this arrangement and the county Tyrone committee six bulls.

(h) *Registration of Dairy Cattle.*

With a view to encouraging the improvement of pure-bred dairy cattle in Northern Ireland, both as regards conformation and milking qualities, the Ministry has established " Registers of Pure-Bred Dairy Cattle," in which pure-bred cows of any dairy breed and their progeny are entered subject to the provisions of the above scheme. Provision is also made for the entrance of particulars of cows of conspicuous milking qualities in corresponding " Advanced Registers " of the dairy breeds.

In its endeavour to improve the dairy cattle of the country the Ministry's principal aim is to bring home to breeders the great advantages that accrue from keeping milk records of all cows in their herds, and emphasis is laid on the fact by means of leaflets, posters, and other propaganda methods that it is only by a systematic keeping of records that a breeder can determine which animals are the most profitable to retain for milk and breeding purposes. Particulars of those animals that comply with the prescribed registration requirements as regards milk yield and calving are entered in the registers, and their progeny are also entered, provided that the sire is a pure-bred bull of similar breed and has been approved by the Ministry for service, and that the particulars of the birth of the calf have been furnished within seven days from the date of calving.

An additional incentive to farmers to keep milk records of their cows is offered by the fact that the male progeny of registered cows are eligible to compete for the premiums allotted under the Ministry's cattle breeding scheme, and, accordingly, higher prices are offered for such calves at approved spring shows and sales. It is, moreover, reasonable to assume that the financial value of the female progeny is also increased if the owner is able to show the prospective purchaser the milk record of the dam.

This scheme is directly controlled by the Ministry, and inspections are carried out twice each year. Cows that are of good conformation and well-defined type are provisionally selected and put under test. During the milking period the Ministry's milk samplers visit the herds periodically to take milk samples which are analysed for butter-fat content at the Ministry's Chemical

Research Station at Queen's University, Belfast. If the cow gives the prescribed quantity and quality of milk for registration and produces a calf (after a normal period of gestation) within fourteen months of the date of calving immediately preceding the milking period for which the milk record has been kept, particulars of the animal are entered in the appropriate register.

The qualifying standards for registration—ordinary and advanced—are set out in the following table :—

TABLE I.

Breed	Ordinary Register			Advanced Register		
	Milk yield lb.	Butter-fat lb.	Percentage of butter-fat	Milk yield lb.	Butter-fat lb.	Percentage of butter-fat
Shorthorn or Ayrshire	6,000	210	3	8,000	280	3
British Friesian	8,000	280	3	10,000	350	3
Kerry or Jersey	5,000	175	3	7,000	245	3

Provision is also made in the scheme for the registration of cows which fail to produce a calf within the 14 month period already referred to, but calve within 16 months from the previous date of calving. Cows coming within this category are required to give a higher milk yield amounting to an increase of 25 per cent. on the appropriate " advanced register " standard. The following table illustrates the minimum registration yield required for each breed and the deductions which are made when entering particulars in the register :—

TABLE II.

Breed	Minimum yield to qualify for registration		Deductions to be made from actual yields for entry in Register.	
	Milk lb.	Butter-fat lb.	Milk lb.	Butter-fat lb.
Shorthorn	10,000	350	2,000	70
British Friesian	12,500	437.5	2,500	87.5
Kerry Jersey	8,750	306.25	1,750	61.25
Any other Breed	Same as for Shorthorn			

The number of cows inspected during the period under review and provisionally selected for registration was 188, as follows :—148 Pure-bred Shorthorns, 6 Non-pedigree Shorthorns, 4 Jerseys, 13 British Friesians, 3 Ayrshires, 14 Kerries.

It is of interest to note that from the date on which the Ministry commenced to function until 30th September, 1926, a total of 3,236 cows, including 301 Pure-bred Shorthorns, 29 British Friesians, 10 Ayrshires, 26 Kerries, 25 Jerseys, 3 Red Polls and 2,842 Non-pedigree Shorthorns, had complied with the standard prescribed for general appearance, quantity and quality of milk yield, and were duly registered. Of this total the number that attained registration standard during the year under review was 51 Pure-bred Shorthorns, 1 British Friesian, 2 Ayrshires, 12 Kerries, 9 Jerseys, 1 Red Poll and 1,031 Non-pedigree Shorthorns.

The following tables give the milk yields upon which the above-mentioned animals were accepted for registration :—

Table showing yields of all cows (pure-bred and non-pedigree) registered by the Ministry during the period 1st October, 1925, —30th September, 1926 :—

Breed	Number of cows registered on a yield of				Total No. of cows registered
	Gallons 500-600	Gallons 600-800	Gallons 800-1000	Gallons over 1000	
Pure-bred Shorthorn	—	39	10	2	51
British Friesian	—	—	1	—	1
Ayrshire	—	1	1	—	2
Kerry	8	4	—	—	12
Jersey	4	2	3	—	9
Red Poll	—	—	1	—	1
Non-pedigree Shorthorn	—	692	275	64	1,031
Totals	12	738	291	66	1,107

Table showing yields of cows (pure-bred and non-pedigree) registered by the Ministry during the period 1st January, 1922—30th September, 1926 :—

Breed	No. of cows registered on a yield of :—				Total No. of cows registered
	Gallons 500-600	Gallons 600-800	Gallons 800-1000	Gallons over 1000	
Pure-bred Shorthorn	—	222	64	15	301
British Friesian	—	6	14	9	29
Ayrshire	—	7	3	—	10
Kerry	19	6	1	—	26
Jersey	7	8	10	—	25
Red Poll	—	1	2	—	3
Non-pedigree Shorthorn	—	1,956	691	195	2,842
Totals	26	2,206	785	219	3,236

During the period under review 165 bulls, the progeny of registered Shorthorn cows, were inspected and 101 were provisionally selected for premiums under the cattle breeding scheme. Of this number 56 were pure-bred animals with dams and sires registered ;

31 were pure-bred with dams only registered, and 14 were non-pedigree animals with approved milk records on one or both sides. In addition 23 bulls, the progeny of pure-bred Shorthorn cows, were inspected at owners' residences and passed as suitable for the service of provisionally selected and registered Shorthorn cows.

Upwards of 2,690 milk samples were taken and analysed by the Ministry for the purpose of butter-fat test of the milk yielded by pure-bred cows provisionally selected for registration.

It may be mentioned that the Ministry has published a register which contains particulars of pure-bred dairy cattle entered in the Ministry's registers up to 31st December, 1923, and copies can be procured from any bookseller or direct from His Majesty's Stationery Office, 15 Donegall Square, West, Belfast. Price 5/- nett.

(i) *Milk Recording Associations.*

The Ministry continued to give special attention to the establishment of milk recording associations during the year under review, and the satisfactory progress which was reported in the fourth annual report was continued. It is clear that an increasing number of farmers are realizing that the information obtainable from milk records affords the most reliable means of securing increased profits from dairy farming. Milk recording is of value whether new milk is sold or made into butter or cheese. Some cows give large daily yields for a short period, while others give moderate yields over a long period, so that it is well-nigh impossible to recognize by casual observation those cows which are yielding a substantial profit and those which are being kept at a loss. It is only by the systematic keeping of milk records that farmers are able to distinguish between the profitable and the unprofitable cows in their herds.

Milk recording convinces farmers that the elimination of unprofitable cows is a business necessity, and that improvement in their herds can be effected only by careful selection and breeding. These latter points are of the greatest importance, as unless farmers make judicious use of the information obtained from milk records by weeding out unprofitable cows and by breeding from those that are profitable the keeping of records is of little value. By careful selection and breeding, however, increase in output of milk can be secured without any great increase in cost. In addition, farmers who keep records are enabled to feed their herds economically by the use of a balanced ration fed according to the milk yield of each individual cow.

During the year the Ministry decided to omit from the scheme the clause under which prizes were awarded to the best associations. It was felt that the provision of these prizes was not in the true interests of the scheme owing to the vastly different conditions under which the supervisors had to work. It was also found necessary to make a slight reduction in the special grant towards

the supervisor's salary. It was with reluctance that the Ministry adopted this course, but as the special funds available for the development of milk recording are limited, it was unavoidable. Apart from these two changes no amendments were made in the general terms of the milk recording scheme under which the Ministry assists recognized milk recording associations. In addition to the grants from the Ministry, associations receive grants from the several county committees of agriculture, and these committees allocated funds for this purpose as follows :—

County Antrim, £150; County Armagh, £60; County Down, £100; County Fermanagh, £110; County Londonderry, £70; County Tyrone, £120.

Eleven new associations were established during the year, viz., one in county Antrim, one in county Armagh, five in county Down, three in county Londonderry, and one in county Tyrone, thus bringing the total number of the associations up to fifty-three.

As will be seen from the following table the number of associations in Northern Ireland has increased steadily since the inception of the Ministry :—

County	Number of Milk Recording Associations						Number of Members						Number of Cows under Test					
	1921	1922	1923	1924	1925	1926	1921	1922	1923	1924	1925	1926	1921	1922	1923	1924	1925	1926
ntrim	1	4	4	11	13	14	43	156	168	394	488	447	245	1052	1074	2458	2733	3100
rmagh	1	1	1	4	4	5	14	47	133	167	173	189	112	192	506	747	680	859
own	...	...	3	2	5	10	...	...	115	68	186	425	...	...	544	440	971	1833
ermanagh	1	4	3	6	6	6	15	117	94	169	198	211	133	931	698	1119	1044	1034
ondond'ry	...	...	1	4	4	7	...	...	58	168	132	305	...	...	306	922	824	1793
yrone	3	4	5	7	10	11	127	121	176	198	346	391	754	934	1210	1417	1861	2264
Totals	6	13	17	34	42	53	199	441	744	1164	1523	1968	1244	3109	4338	7103	8113	10883

In addition to making grants to the funds of the associations the Ministry assists them to procure pure-bred dairy bulls of deep milking strain and grants a subsidy equivalent to two-thirds of the cost price of the bull. Eighteen associations took advantage of this arrangement during the past year. The prices paid for the bulls varied from 40 guineas to 240 guineas, the average price being about 102 guineas.

In February, 1926, a course of instruction for supervisors was conducted in Belfast, at which sixteen newly appointed supervisors attended. More advanced lectures were given during the last two days of the course for the benefit of all supervisors.

The Ministry realizes that further expansion of the milk recording scheme is dependent on the continued education of farmers as to the advantages accruing from the adoption of this and other schemes of the Ministry dealing with the dairying industry. In order to bring these advantages to the notice of farmers and to encourage the establishment of milk recording associations, the Ministry's inspectors attended meetings of farmers and gave ad-

dresses on the subject. In addition, frequent visits were made to all established associations during the year for the purpose of checking the work of the supervisors and advising them on all matters connected with their associations.

The Ministry carried out two inspections of cows which had qualified in respect of milk and butter-fat yields for entry in the Ministry's Register of Dairy Cattle. As a result of these inspections 998 cows were accepted for entry in the Register, and a further 53 cows were provisionally passed and will be entered in the Register provided that they calve within the prescribed period.

(j) *Swine-breeding.*

This scheme is on similar lines to the cattle-breeding scheme, and aims at the improvement of the breeding of pigs by the provision of premiums for pure-bred boars of the following breeds :— Large White Ulster and Large White York. As in the case of the cattle-breeding scheme it is administered by the county committees of agriculture. Young boars of the approved breeds are inspected by the Ministry's live stock officers, and those which are found to be of high standard are passed as suitable for premium purposes and the applicants selected by the county committees purchase boars so passed.

The boar may earn a premium for two years only, the maximum value of the premium being £8 for a first year boar and £6 for a second year. To earn this premium the animals must serve from 30 to 40 sows at a service fee varying from 2/6 to 5/- as fixed by the county committee. Boars which have been awarded a first year premium are inspected at the end of the season with a view to determining their suitability for the award of a further premium. This award is conditional upon the animal having proved fruitful, and this further premium is not awarded unless there is evidence that the boar has been kept in proper condition during the year. Particulars of (a) age, and (b) breed of boars awarded premiums in 1926 are shown in the following table :—

TABLE I.

County	1st year boars		2nd year boars		Breeds		Total No. of boars awarded premiums
	Value of premiums	No. of boars	Value of premiums	No. of boars	Large White Ulster	Large White York	
Antrim	£8	15	£6	11	26	—	26
Armagh	8	8	6	5	13	—	13
Down	8	17	6	3	18	2	20
Fermanagh	8	9	6	3	12	—	12
Londonderry	8	8	6	6	14	—	14
Tyrone	8	14	6	6	20	—	20
Totals	—	71	—	34	103	2	105

The amounts allocated by the several county committees under this scheme for the year 1926 and the estimated expenditure for the year were as follows :—

TABLE II.

County	Money allocated by county committee for boar premiums	Estimated expenditure by county committee for boar premiums	No. of premiums estimated to be paid by county committee	Total No. of premium boars standing during service season
Antrim	£200	£186	25	26
Armagh	100	94	13	13
Down	150	148	20	20
Fermanagh	100	90	12	12
Londonderry	120	100	14	14
Tyrone	180	148	20	20
Totals	£850	£766	104	105

(k) *Sheep-breeding.*

(a) *In Mountainous Districts.*

This scheme was in operation in five counties, and particulars of its working during the period under review are given in the following table :—

County	Allocation from joint fund	Number of rams supplied	Average cost of rams	Average price paid by applicant	Net expenditure (cost of rams less receipts from sales)	Excess over ordinary allocation borne from special development grant
Antrim	£100	34	£9 9 0	£3 10 0	£202 3 7	£102 3 7
Armagh	40	7	7 4 0	3 10 0	25 19 5	Nil.
Down	80	28	9 10 0	3 10 0	167 7 10	87 7 10
Fermanagh	12	—	—	—	—	—
Londonderry	60	9	10 8 0	4 10 0	53 5 0	Nil.
Tyrone	60	28	9 3 6	4 0 0	144 11 2	84 11 2
Totals	£352	106	—	—	£593 7 0	£274 2 7

The scheme has developed considerably in recent years—in 1923-24 there were only 38 rams placed out in the five counties participating—and the Ministry is satisfied that the extension of the scheme has greatly benefited breeders of mountain sheep. The fundamental principle is that high-class rams are supplied on easy terms to breeders in mountainous districts. Each breeder is required to keep the ram in good and healthy breeding condition for two seasons, and, at the end of that time, the animal is generally disposed of to an owner in another district. In this way the ram remains in use for three or four years. This system is the only one which could be worked successfully in a mountainous district,

the mountain being common to several owners of sheep, and the ram having a free range and running with common flocks. It has been the practice to import a considerable number of rams from Scotland, but the majority of the animals are selected at the sales held in the autumn each year in Belfast under the auspices of the Ulster Ram Breeders' Association.

In order to demonstrate the marked improvement that has been effected in mountain sheep by the working of the scheme during the past few years two successful exhibitions of black-faced sheep, the majority of which were the progeny of rams placed out under this scheme, were held in August at Cushendall and Carnlough in county Antrim. The events evoked keen local interest, and the judge, who was a Scottish breeder of repute, commented very favourably upon the general standard of the exhibits. Cash awards amounting to £22 10s 0d were presented to the winning owners, and this expenditure was defrayed by the Ministry.

(b) *In Lowland Districts.*

With the object of improving sheep-breeding in lowland districts, the scheme providing premiums for pure-bred rams of lowland breeds, which was inaugurated in 1925, was continued during the 1926 season, and the following table illustrates the extent of the operations carried out :—

County	Allocation from joint fund	No. of premium rams			Amount expended by county committee for premiums
		Border Leicester	Suffolk	Total	
Antrim	£32	3	—	3	£24
Londonderry	48	4	2	6	44½
Total	£80	7	2	9	£68½

The general features of the 1926 scheme are practically identical with those for 1925 which were set out in detail in the Ministry's fourth annual report (page 68), the only change, which was made with the concurrence of the Ministry's sheep advisory committee, being that the service of registered pedigree ewes should not count for the purposes of payment of the premium. This scheme has undoubtedly given an impetus to lowland sheep-breeding in Northern Ireland, and, although it is still in the experimental stage, the Ministry is sanguine that it will prove a success.

The county Down committee of agriculture has adopted the scheme for next season, and is offering ten premiums for Border Leicester rams.

(l) *Goat-breeding.*

During the period under review the Ministry continued its efforts to improve this useful and valuable class of live stock,

which is almost indispensable to the small farmer and labourer all over the Six Counties, and especially in the more remote and mountainous districts.

The type of goat to be found in most districts is capable of much improvement. With a view to encouraging the keeping of goats, the Ulster Goat Society was formed in 1922, and in furtherance of its objects it promotes the formation in rural districts of societies of persons interested in the keeping of goats, and has in operation a stud goat scheme under which high class male goats are placed out with selected applicants throughout the Six Counties. The society also encourages milk-recording, members' records being checked periodically by the Ministry's officers. Particulars of those goats which give a calculated yield of not less than 900 lb. of milk in a lactation period not exceeding 45 weeks are entered in the Ministry's Register of Goats. Up to the present twenty-one goats have qualified and been registered. The society receives a grant from the Ministry and, in addition, four stud goats were purchased by the Ministry and presented to the society during the past year for placing out under the society's stud goat scheme. It is gratifying to record that this scheme is meeting with a fair measure of success and that the demand for male goats is in excess of the supply.

(m) *Creameries.*

The scheme inaugurated by the Ministry in 1922 for the improvement of the quality and marketing of dairy produce in connexion with creameries and cheese factories was continued during the period covered by this report. Thirty-six central creameries and eighty-three separating stations were on the list for visits by the Ministry's inspectors.

During the year 119 visits were paid by the Ministry's inspectors to central creameries and 103 to separating stations. As in previous years the inspectors placed their specialized training at the disposal of the creamery authorities, affording advice on all matters relating to the manufacture and production of creamery butter and making recommendations regarding machinery and working methods.

Experiments were carried out during the year at Omagh creamery, in which a special plant had been installed, with the object of producing butter of a uniform quality from cream supplied by a number of auxiliaries. The results of these experiments have demonstrated that it is possible to produce from mixed cream a uniform quality of butter throughout the year provided that the necessary machinery and plant are available. For the purpose of experimenting on a large scale with the pasteurization of auxiliary cream at the central the Ministry has decided to continue the experiments at Omagh for another year.

Surprise butter inspections.—The series of surprise butter inspections held periodically at convenient centres in Northern Ireland and Great Britain was continued during the year. At the inspections the butter, which is called up from each creamery by telegram, is judged after an interval of from 8 to 10 days for flavour, texture and marketable appearance, and in addition a sample is taken in each case and tested for moisture content. The butter forwarded for inspection is divided into three grades, viz. :— " Premium," " Standard," and " Below Standard." The following scale of points is adopted as the basis for judging and classifying butter sent to the inspections :—

Characteristics	Premium		Standard
	Maximum	Minimum	
Flavour	120	113	112
Texture	60	55	54
Marketable Appearance, Packing, Finish, etc.	20	19	18

Butter is not classed as " Premium " or " Standard " if it scores less than the minimum marks prescribed under any of the above headings, or if it is found to contain moisture in excess of the legal limit (16%).

Twelve inspections were held during the year—four in Belfast, two in Glasgow, and one in Manchester, Newcastle-on-Tyne, Omagh, Enniskillen, Strabane and Dungannon. On the occasion of the inspection at Manchester a conference was held between members of the National Federation of Produce Merchants, Ltd., managers of central creameries in Northern Ireland and representatives of the Ministry, at which matters connected with the sale and marketing of Northern Ireland creamery butter in Great Britain were discussed. In connexion with the cross-channel inspections the butter was exhibited on the day following the inspection for examination by leading wholesale merchants, and in each case a keen interest was evinced in the display by the merchants attending, who were afforded full information regarding the butter industry in Northern Ireland by the Ministry's representatives.

At the conclusion of each of the inspections held at Omagh, Enniskillen, Strabane and Dungannon a conference of creamery managers and the Ministry's representatives was held, when matters affecting the interests of the dairying industry were discussed.

Marking of Butter Packages.

It has not been found necessary to make any change in the conditions governing the award of the special government stamp

as outlined at page 70 of the Ministry's fourth annual report. The improvement in the standard of Northern Ireland butter marketed in Great Britain mentioned in last year's report was maintained during the year under review.

As the "Official Number" stamp, which was issued in May, 1924, to all Northern Ireland creameries with a view to enabling the Ministry's representative in Great Britain to identify butter in cases of complaint, was liable to be confused by cross-channel merchants with the Ministry's special marking stamp it was decided to alter the wording of the stamps. Accordingly, new stamps bearing the words "Creamery Number" and "Premium Creamery Number" were substituted for the original stamps, impressions of which appear on page 28 of the appendices to the Ministry's third annual report.

Courses of Instruction for Creamery Managers and for Butter-makers.

Courses of instruction for the benefit of creamery managers were conducted by the Ministry during February, 1926, at Omagh and Enniskillen. A valuable series of lectures and demonstrations was given at the classes, which were attended in all by forty-one managers.

A course for head butter-makers and principal assistant butter-makers employed in Northern Ireland creameries was held in Leckpatrick creamery, Artigarvan, Strabane. This course, which was attended by twenty-three butter-makers, was greatly appreciated.

Training of Dairymaids.

Under this scheme selected pupils from the Ulster Dairy School who wish to obtain practical training in creamery work are afforded an opportunity of undergoing a course of such training at approved creameries. The course covers a period of 20 weeks, and the Ministry makes a contribution towards the cost of the pupil's board and lodgings during the period of training. In addition, small grants are also paid at the termination of the course to the manager and head dairymaid of the creamery where the instruction was given. At the conclusion of the course, provided their conduct and work have been satisfactory, the girls are awarded by the Ministry a certificate of competency in creamery butter-making, and efforts are made by the Ministry to place them in positions as dairymaids.

During the period under review four girls were sent to selected creameries. Two of these girls terminated their training within the year, and, in addition, two girls who had been in training during the previous year also finished. In all four cases the Ministry was able to award its certificate of competency in creamery butter-making.

9. Agricultural Laws.

Live Stock Breeding Act (Northern Ireland), 1922.

This Act has now been in force since 1st January, 1924, and there can be no doubt that, as a result of the measure, low-grade bulls,which caused so much harm to the stock of the country, are gradually but surely disappearing. Breeders and farmers generally are recognizing the advantages of keeping for service purposes only such bulls as are of a high standard of merit, and are giving their full-hearted support to the Ministry in its efforts to grade up the cattle in the province.

Arrangements have been made with the Ministry of Lands and Agriculture of the Irish Free State whereby all bulls licensed in Northern Ireland will also be licensed in the Irish Free State and *vice versa*. Similar reciprocal arrangements have been made regarding bulls rejected for licence in either area.

Some changes in regard to the ages at which bulls require to be licensed and to the types of bulls which are eligible for licences were found as the result of experience to be desirable, and after consultation with the Advisory Committee on Cattle Breeding were adopted by the Ministry, and took effect as from the general inspections held in the autumn of 1926. Particulars of these changes appear on page 127 of the appendices. In order that breeders and owners of bulls should be given timely notice of the new requirements posters were displayed throughout the six counties, notices were inserted in the Press, and circulars and handbills were widely distributed. The statutory rules made under the Act were revised so as to embody the new provisions in regard to the ages of bulls, and the Guide to the Act was also revised and issued to all owners of bulls.

Two general inspections were held as usual at a large number of centres throughout the six counties—the first in February and March, the second in August and September. Prior to each inspection farmers were reminded by means of Press notices, posters, circulars and handbills of the necessity of making application for licences, and were advised as to the necessary procedure. At the spring sales held by the Royal Ulster Agricultural Society at Balmoral, Belfast, and by the North-West of Ireland Agricultural Society at Londonderry, all bulls exhibited which attained the prescribed age on 31st March, 1926, were inspected for licences. Breeders of young pure-bred bulls were thus given an opportunity of having their animals inspected for licences at these sales instead of at the ordinary local centres. A like procedure was adopted at a few representative local sales. Licences were issued at the sales to all purchasers of young bulls or were transferred to new owners in the case of older licensed bulls which changed hands.

In Table A. below are given particulars of the results of inspections held in spring, 1926, of bulls which were of the prescribed age on 31st March, 1926. Table B. relates to similar inspections held in autumn, 1926, of those bulls which reached the prescribed age on 30th September, 1926.

TABLE A.

(Inspections held in spring, 1926, of bulls which reached the prescribed age on 31st March, 1926).

County	Number of applications for licences	Number of licences granted	Number of licences refused	Number of bulls withdrawn, castrated or dead before inspection
Antrim	973	621	324	28
Armagh	398	247	139	12
Down	507	344	145	18
Fermanagh	340	223	109	8
Londonderry	549	372	164	13
Tyrone	884	544	313	27
Totals	3,651	2,351	1,194	106

Included in above are 281 bulls which were specially inspected at owners' residences subsequent to the ordinary inspections (259 licensed and 22 rejected).

TABLE B.

(Inspections held in autumn, 1926, of bulls which reached the prescribed age on 30th September, 1926).

County	Number of applications for licences	Number of licences granted	Number of licences refused	Number of bulls withdrawn, castrated or dead before inspection	Number of bulls yet to be inspected (late applications)
Antrim	268	183	61	23	1
Armagh	89	66	9	13	1
Down	131	91	19	21	—
Fermanagh	38	25	4	8	1
Londonderry	76	46	20	10	—
Tyrone	152	111	18	21	2
Totals	754	522	131	96	5

Included in above are 46 bulls which were specially inspected at owners' residences subsequent to the ordinary inspections (40 licensed and 6 rejected).

The number of applications (754) is somewhat smaller than normal owing to the fact that bulls calved in January and February, 1926, will not, under the new regulations, attain the

prescribed age until 31st March, 1927. Such bulls will be inspected in the spring of 1927.

Special inspections were carried out at owners' residences in the case of 635 bulls, viz., 327 young bulls and 308 older bulls. Of these 635 bulls 545 were licensed and 90 rejected.

The percentages of cases in which licences were refused at the several ordinary inspections since the Act came into operation are as follows :—

September, 1923	5.7%
February, 1924	15.4%
September, 1924	22.5%
February, 1925	23.0%
September, 1925	23.0%
February, 1926	,, 36.3%
September, 1926	20.6%

Thirty appeals were lodged against the Ministry's decision to refuse to grant licences under the Act, and in eight of these cases the appeals were successful. During the year the Ministry was reluctantly compelled to take legal proceedings against nine persons for keeping unlicensed bulls and against two persons for refusing to allow rejected bulls to be earmarked in accordance with the regulations. Convictions were obtained in every instance.

In 111 cases permits were granted to owners of unlicensed bulls to enable them to retain the animals for a limited period for fattening purposes. In 95 of these cases the bulls were slaughtered before the expiry of the permit; in the remaining 16 cases the permits will not expire until 31st December, 1926.

The Ministry desires again to put on record its high appreciation of the valuable assistance rendered by the Royal Ulster Constabulary in the enforcement of the provisions of the Act.

Animals' Quarantine Station.

Arrangements were made during the month of April, 1926, for the importation through the station of two consignments of animals from Scotland. The first consignment comprised 26 animals and the second 8 animals. The period of quarantine in the case of each consignment was 10 days.

Horse Breeding Act, 1918.

The number of stallions licensed during the year was 132, as compared with 122 in the previous year, 141 in 1924, 153 in 1923, and 168 in 1922. In the following table a comparison is shown of the results of the inspections of stallions for licences in the past three seasons.

County	Number of applications for licences for seasons			Number of licences granted			Number of licences refused		
	1924	1925	1926	1924	1925	1926	1924	1925	1926
Antrim	41	33	41	33	29	35	8	4	6
Armagh	10	8	12	8	7	10	2	1	2
Down	44	37	37	38	35	35	6	2	2
Fermanagh	9	10	14	9	9	11	—	1	3
Londonderry	38	31	31	34	27	28	4	4	3
Tyrone	22	18	17	19	15	13	3	3	4
Totals	164	137	152	141	122	132	23	15	20

In 1926 13 stallions were rejected for faulty conformation, three for unsoundness and in the remaining four cases both these defects were present.

There was no instance during the year of an appeal against the Ministry's decision to refuse to grant a licence for a stallion.

The following table shows the number of stallions of each breed licensed in each county for the 1926 season :—

County	Thoroughbred	Clydesdale	Half-bred	Shire	Suffolk Punch	Irish draught	Hackney	Pony	Percheron	Totals
Antrim	3	9	7	—	1	—	3	10	2	35
Armagh	1	4	4	—	—	—	—	1	—	10
Down	16	9	6	1	—	—	2	1	—	35
Fermanagh	1	2	4	—	—	—	1	3	—	11
Londonderry	2	16	3	—	1	—	5	1	—	28
Tyrone	3	4	4	—	—	1	1	—	—	13
Totals	26	44	28	1	2	1	12	16	2	132

One thoroughbred stallion died, and one Clydesdale, one Percheron, one Hackney and two Thoroughbreds were exported before the end of the season.

Horse Breeding Bill.

With a view to reinforcing the efforts that have been made to improve the breeds of horses in Northern Ireland the Ministry drafted a new Horse Breeding Bill which is designed to replace the existing Horse Breeding Act, 1918. It had become manifest that the provisions of the 1918 Act prohibiting the use of unlicensed stallions for stud purposes were in many cases not being observed, but it was practically impossible to obtain actual evidence of the service of mares by such stallions. This practice

of using unlicensed stallions for service purposes would tend to increase and would thus ultimately defeat the object of the 1918 Act. The new Bill, accordingly, provides that it shall be an offence for any person to be in possession of a stallion in respect of which a licence has not been issued by the Ministry, provided, however, that permits may be granted to owners of unlicensed stallions coming within certain categories, such as race horses, polo ponies, etc., to enable them to keep such animals for other than service purposes. The new legislation will, it is hoped, be in operation in 1927.

Regulations Affecting the Export of Plants.

The following table shows the number of consignments of plants for which certificates of health were issued after inspection in compliance with the regulations of the several countries to which the plants were exported :—

Country to which exported	Number of certificates issued in respect of				Total
	Rose Trees (including stocks)	Shrubs	Herbaceous Plants	Bulbs, etc.	
Canada	67	—	2	2	71
New Zealand	19	—	—	6	25
U.S.A.	16	4	—	3	23
Holland	12	—	—	—	12
Africa	9	—	—	—	9
Other Countries	34	—	—	2	36
Totals	157	4	2	13	176

Regular inspections were also carried out of the more important nurseries in Northern Ireland during the year.

As a result of its policy of keeping in close touch with plant health regulations in British and foreign countries the Ministry was during the year enabled to secure at least one important concession for exporting nurserymen in Northern Ireland.

In December, 1925, the Danish Ministry of Agriculture issued new Regulations which precluded the entry into that country of any plants which had been grown with 10 kilometres of a case of black scab disease. The enforcement of these Regulations would have rendered it impossible for consigments of plants to be sent to Denmark from a number of important Northern Ireland nurseries which, although situated in clean areas, were within the ten kilometre radius. The Ministry, being satisfied that such a radius in this connexion was excessive and that reasonable safety for the importing country could be secured if the radius were

reduced to one or two kilometres, arranged for the making of representations to the Danish Authorities, with a view to securing a modification of the new provisions and ultimately the Danish authorities, while regretting their inability to alter the general provisions of the Regulations, expressed their willingness to grant exemptions on conditions :—

(1) that each consignment of plants is accompanied by a certificate from the Ministry indicating the distance between the place of production and the nearest centre of black scab disease ; and

(2) that the Danish importer gives exact particulars as to the quantity and quality of the plants to be imported.

Destructive Insects and Pests (Northern Ireland) Order of 1922.

In accordance with the arrangements indicated in previous reports, consignments of plants which during the year arrived at Northern Ireland ports from foreign countries unaccompanied by the health certificates prescribed by this Order, were reported to the Ministry by the Customs Authorities. In none of the cases so notified, in which inspection was deemed by the Ministry advisable, was the consignment found to be affected with any of the pests or diseases mentioned in the Order.

Certificates were received in respect of 375 consignments of plants imported from abroad. These importations were chiefly bulbs and shrubs from Holland, Belgium and France.

Sale of Diseased Plants (Northern Ireland) Order of 1922.

Inspections under this Order with a view to ascertaining that only healthy stocks of plants are exposed for sale at the various auctions of nursery stock in Northern Ireland during the year were made in 39 instances. In no case was any of the diseases mentioned in the schedule to the Order found at these inspections, but a consignment of 33 black currant bushes imported from Holland was found to be affected with black currant mite and was destroyed under the American Gooseberry Mildew and Black Currant Mite (Ireland) Order of 1912, in the presence of the Ministry's Inspector.

American Gooseberry Mildew and Black Currant Mite (Ireland) Order of 1912.

In the course of their usual inspections of nurseries no traces of either of the diseases, American gooseberry mildew or black currant mite, were found by the horticultural instructors. During their visits to private gardens, however, 12 cases of American gooseberry mildew and 16 cases of black currant mite were found and, on the recommendation of the instructors, the affected bushes were destroyed.

The number of licences issued under the provisions of the Order and the number of bushes imported during the year are as follows :—

Number of licences issued	21
Number of gooseberry bushes imported	633
Number of currant bushes imported ...	1,284

All the bushes were imported from England.

Weeds and Agricultural Seeds (Ireland) Act, 1909.

Noxious Weeds.—A campaign on lines similar to those undertaken in the preceding two years with the object of enforcing the provisions of Part I of the above-mentioned Act was conducted during the summer of 1926. For about six weeks from the beginning of July fourteen temporary inspectors were employed throughout the six county area, with directions to report all cases detected by them of the prevalence of noxious weeds. In all 7,774 farms on which weeds were prevalent were visited on at least two occasions. The occupiers and owners of 1,709 of these farms were served with notices requiring the destruction of the weeds. In the remaining cases the inspectors were able to secure such destruction without the issue of notices. The response to the notices issued was so satisfactory that in only one instance did the Ministry feel compelled to institute proceedings, and in that case a conviction was secured.

Agricultural Seeds.—In order to ascertain the general quality of the agricultural seeds offered for sale in Northern Ireland 195 samples were taken officially during the year from stocks on merchants' premises and were subsequently analysed at the Ministry's Seed Testing Station. The results of these analyses revealed that while in some cases the seed was not entirely satisfactory, nevertheless, on the whole, stocks were of good quality. The vendors of seed found to be unsatisfactory were advised to withdraw remaining supplies from sale, and in every instance this advice was acted upon.

Careful investigation was made as to the origin, etc., of unsatisfactory seed and appropriate action was taken with a view to safeguarding the interests of Northern Ireland farmers.

Seeds Act, 1920.

It will be recollected that the above-mentioned Act controls the cross-channel sale of agricultural seeds.

The results of the analysis of samples drawn during the year on the premises of a number of Belfast wholesale merchants indicate that on the whole the quality of the seed imported from Great Britain continues to be satisfactory.

Bee Pest Prevention (Ireland) Act, 1908.

The following table shows the activities of the instructors in horticulture and bee-keeping in connection with the control of diseases of bees together with the number of diseased stocks found during the year :—

County	Number of Visits	*Number of examination of individual Stocks	Stocks found diseased	
			Foul Brood	Isle of Wight
Antrim	84	147	—	—
Armagh	136	419	—	2
Down	155	511	—	5
Fermanagh	335	774	19	—
Londonderry	63	170	—	2
Tyrone	45	122	—	3
Totals	818	*2,143	19	12

*In certain instances stocks were examined on more than one occasion.

These figures show a decrease in the number of cases of Isle of Wight disease reported this year as compared with last year, the figures being respectively 12 and 36.

The number of stocks of bees existing in Northern Ireland during the year shows an increase, the number being 1,413 in 1926, as compared with 1,230 in the previous year. The increase is attributed to the more favourable weather conditions during the honey flow in 1925.

Fertilisers and Feeding Stuffs Act, 1906.

With a view to ensuring that invoices as required by the Act are supplied in all cases of sales of fertilisers and feeding stuffs the Ministry, through the medium of the instructors in agriculture, who are also official samplers under the Act, kept a close watch on all sales of these commodities. From the reports that have been received it transpires that in the large majority of cases invoices are supplied. Farmers, however, still hestitate to ask for these documents, and in such circumstances it is sometimes found that invoices are not furnished.

The number of samples drawn by the official samplers during the year is given in the following table :—

Fertilisers.		Feeding Stuffs.		Total.
Official.	Unofficial.	Official.	Unofficial.	
6	22	5	43	76

In recent years the Ministry has observed that there has been a serious decline in the quality of decorticated cotton cake and decorticated cotton seed meal offered for sale in Northern Ireland. From investigations made it would appear that almost all such cake and meal now imported is of second-grade quality and guaranteed generally to contain some 36% of albuminoids and 6 or 7 % of oil. Decorticated cake and meal of the best quality should contain not less than 40% albuminoids and 8% oil.

The Ministry, therefore, thought it essential to draw the attention of those engaged in the sale of feeding stuffs in Northern Ireland to this unsatisfactory state of affairs, and the opportunity was also taken to warn traders of the illegality of the practice sometimes adopted of giving in invoices a combined total figure for albuminoids and oil and not the separate percentages as required by the Act. Farmers were advised also by means of a circular, which was widely distributed among the agricultural community, that the purchase of inferior feeding stuffs, even at a lower price, is uneconomical. They were further advised to insist on obtaining, when purchasing feeding stuffs, an invoice as required by the Act.

Fertilisers and Feeding Stuffs Bill, 1926.

In previous reports references have been made to the steps which have been taken across the Channel in connexion with the substitution of more efficient legislation for the Act of 1906. These steps culminated in June last with the introduction into the Imperial House of Lords of the Bill which had for so long been foreshadowed. The main provisions of the Bill, which, to a large extent, had been agreed upon by the various interests concerned, are designed to indicate more clearly the various articles to which the law should apply; to amend the existing law by requiring the vendor of certain fertilisers and feeding stuffs to give a warranty to the purchaser upon which a civil action could be founded: and to provide facilities for testing such warranty by analysis. The Bill ensures that a purchaser availing himself of the facilities referred to can do so without being exposed, as at present, to the risk of being involved as a witness in criminal proceedings against the vendor. The Bill, however, affords protection to purchasers and reputable traders by facilitating criminal proceedings against the minority of fraudulent traders in cases of fraud.

The Ministry, on the introduction of the Bill, decided after the fullest consideration to endeavour to obtain the inclusion of Northern Ireland within the scope of the measure. The Imperial Authorities consented to this course, and a clause giving effect to the decision was inserted in the Bill.

Provision is made for the appointment of an Advisory Council which will advise as to the Regulations to be made on certain points under the new legislation. The Council will include representatives of the manufacturers and importers of fertilisers and

feeding stuffs and of the agricultural industry. Arrangements have been made whereby the Ministry will be kept closely in touch with the proceedings of this Advisory Council.

As the Bill has yet to pass through its various stages in the Imperial House of Commons, it is premature to refer in more detail to the nature and probable effect of the legislation proposed.

10. Flax and Potato Industries.

A. *Flax Industry.*

The acreage under flax in Northern Ireland in 1926 again showed a considerable diminution, being 30,518 acres as compared with 37,786 acres in 1925 and 42,858 acres in 1924, a decline which may in the main be attributed to the low yield obtained in the previous season and to the low prices prevailing at the close of that season.

While is is feared that any satisfactory advance in prices must await the termination of the existing period of grave depression in the linen trade, there is, however, a probable remedy for the low yields of recent years. That remedy, as was pointed out in the Ministry's last Report, involves the provision for Northern Ireland flax-growers of supplies on a commercial scale of improved varieties of seed.

It will be recollected that special steps had already been taken to build up supplies of the "J.W.S." variety through the instrumentality of the Flax Industry Development Society, which had been founded for that specific purpose. From the seed which had been saved from the crops grown in England by the Society 22½ tons were sold to farmers in Northern Ireland on the condition that seed from half of the resulting crop would be saved. An area of approximately 590 acres was grown, and the crops were, in general, distinctly superior to those grown from commercial seed.

With a view to assisting farmers in the saving of the seed a number of machines designed for the deseeding of flax, by cutting off the seed bolls from the green flax straw, were purchased and placed at the disposal of farmers. The crops were, however, very badly lodged and tangled and, as at pulling time the weather was most unfavourable, farmers generally did not find that they could save seed from their crops by the use of these machines. The growers in some instances adopted other systems of saving the seed, but owing to the lodged and tangled condition of the crops and the wet weather that prevailed at the time the crops were being harvested the quantity of seed saved by any system was negligible.

In order to determine whether pure linen varieties of flax seed when propagated for several years in Canada would be suitable for the requirements of growers in Northern Ireland a supply

of 8 cwt. of "J.W.S." seed was sent to the Dominion Department of Agriculture, Canada. The latter Department has arranged to propagate the seed in different districts in Canada, under various systems. In future years experiments will be carried out to test the seed so propagated with similar varieties grown in this country and in England. If the scheme proves a success it is hoped that Canada will be able in future to provide considerable supplies of this pure-line seed for sowing in Northern Ireland. For similar experimental purposes 1 cwt. of pure-line No. 6 seed was also sent to Canada, and this seed will be treated by the Dominion Department in the same way as the "J.W.S." variety.

Variety Trials.—At five centres in Northern Ireland variety trials were arranged for the purpose of comparing the following pure lines, with several varieties of commercial seed :—

" J.W.S." ex South Africa.
" J.W.S." ex England.
Danish 21.
Danish 40.
Dutch Strain K.
Dutch Strain H.
Saginaw.

In the preceding two seasons the pure-line varieties gave good results, yielding a monetary advantage of from 25 to 30 per cent. over the commercial varieties.

The results of the trials conducted during the past three seasons will be published in leaflet form in due course.

Propagation of Pure Lines of Flax.—Almost two acres at the grounds of the North West Agricultural School, Strabane, were devoted to the propagation of five of the most promising new pure lines which had been propagated at Stormont in previous years. The varieties selected were M 7/8, M 1/14, No. 27, No. 26 and Hybrid 2X6.

Checker board tests of several of these varieties were also carried out at Stormont and are referred to on page 33 of this Report.

Flax Demonstrations.—With a view to affording farmers in areas where " J.W.S." seed was not procurable an opportunity for comparing the growing crop of that variety with those of other varieties, twenty-four demonstration plots were laid down at various centres in which seed of this variety was grown alongside crops of Dutch and Riga seed.

General.—The Ministry, in accordance with its usual practice, issued a leaflet containing information as to the quantity and quality of flax seed available for sowing in the 1926 season. The information, which was collected from a number of sources, was widely distributed among agricultural societies, farmers' unions, seed merchants, etc.

Instructors.—As in previous years five officers were employed by the Ministry in the giving of assistance and instruction to farmers in the growing of the flax crop.

Scutch Mills Act (Northern Ireland), 1923.

At the commencement of the scutching season the Ministry by means of a circular, again drew the attention of all scutch mill owners in Northern Ireland to the chief provisions of the Act, and impressed on them the need for careful compliance therewith.

Inspections of 239 scutch mills were made by the Ministry's Inspectors during the scutching season, and from their reports it would appear that scutch mill owners are now fulfilling the obligations imposed on them by the Act.

Tow Prices.—In continuance of the arrangements instituted in the previous scutching season to which reference was made in the Ministry's last annual general Report, the Ministry again arranged for the collection at regular intervals of information from various local centres regarding the current prices of tow. This information was published in the press so that farmers might be in a position to estimate with reasonable accuracy the prices which they might expect to receive for their tow.

B. *Potato Industry.*

In the year 1926, 153,071 acres of potatoes were planted in Northern Ireland, the acreage being approximately the same as that of the previous year.

It is not as yet practicable to give definite figures as to production in 1926, but there are indications that the total yield will be slightly above average, although less than that in 1925, which equalled the record average yield of 1913.

163,337 tons of potatoes were exported from Northern Ireland ports during the season of 1925-26, being an increase of some 38,000 tons on the exports during the preceding season. Unfortunately, however, as was foreshadowed in the Ministry's last report, the price realized by the growers of potatoes for export fell to an average of £1 13s 6d per ton—a very serious drop from the price £4 2s 1d obtained in 1924-25 and £5 12s 9d in the year 1923-24. This serious decline in price was due almost entirely to the increase in production of some 500,000 tons in England and Wales during 1925, as compared with 1924, an increase which naturally resulted in the demand from the British markets, on which the Northern Ireland potato export trade is almost entirely dependent, being seriously curtailed.

The total production of potatoes in England and Wales in 1926 has been estimated at some 2,763,000 tons, being over 500,000 tons less than in the previous year. This decline in production should re-act favourably on the export price of Northern Ireland potatoes during the 1926-27 shipping season.

The Ministry throughout the year actively pursued its policy of promoting the growing of immune varieties of potatoes in Northern Ireland, and thereby minimizing the risk of the spread of Black Scab disease. A circular, a copy of which appears in page 127 of the appendices, was issued at the commencement of the planting season urging the need for a further increase in the planting of varieties immune from the disease.

Quantities of seed of suitable immune varieties were supplied to farmers on special terms in certain scheduled areas where the conditions rendered it impracticable for growers to procure seed of the right type in the ordinary way.

It is satisfactory to record that very substantial progress is being made in the foregoing connexion. Of the 153,071 acres under potatoes in Northern Ireland in 1926 just over 60% were planted with immunes, as compared with 47% in the previous year. The acreage under the "Arran Victory" variety (immune) alone shows an increase of 7,000 acres over the area similarly planted in 1925, while the acreage under "Kerr's Pink" (immune) increased from 445 acres in 1924 to 2,439 acres in 1925 and 11,182 acres in 1926.

Black Scab in Potatoes Orders.

With regard to the reference made in last year's report as to the discovery of outbreaks of black scab disease in the southern portion of County Londonderry, the Ministry was compelled on the 12th November, 1925, to make the Black Scab in Potatoes (Northern Ireland), No. 2 Order, 1925, scheduling an area (of approximately 65,000 acres, comprising 123 townlands) in the district mentioned.

While farmers generally co-operated loyally in the carrying out of the provisions of the Ministry's Orders, the Ministry was obliged in 27 cases to institute proceedings for breaches of the provisions of the Orders, and convictions were secured in each instance.

Marketing of Potatoes.

The Ministry again by every means in its power endeavoured to encourage the placing of Northern Ireland potatoes on the market in the best possible condition. The use in certain instances of inferior bags for the shipment of potatoes from Northern Ireland to British ports has, in recent years, given occasion to much unfavourable criticism and, if persisted in, will undoubtedly handicap seriously our export trade. At the beginning, therefore, of the last shipping season the Ministry drew the attention of exporting merchants to the necessity for the use of good quality bags for this trade. Similar steps were taken at the commencement of the present shipping season, and

the question of the branding of bags with distinguishing marks was also brought to the notice of shippers, it being believed that the use of a distinct mark on each bag would materially assist in the proper stowage and in the correct and expeditious delivery of potatoes.

Special measures were taken to facilitate the marketing of the surplus in the newly scheduled South Londonderry area. The area in question hitherto specialized in the raising for the Belfast and Dublin markets of potatoes of the "Skerry" (non-immune) and "Arran Victory" (immune) varieties, more particularly the former. The immediate result of the scheduling of the district was the automatic closing of all Irish markets to potatoes from the area. An endeavour was, therefore, made to find markets across the channel, chiefly in Lancashire and at Bristol Channel centres. The marketing, however, of coloured potatoes such as "Skerry" and "Arran Victory" in Lancashire and South Wales presented somewhat difficult features, as English and Welsh consumers had a prejudice against coloured potatoes. The Ministry, therefore, made very special efforts to render the cross-channel marketing of potatoes from the newly-scheduled area a commercial proposition. In conference with representatives of the producers and merchants within the area the Ministry secured such grading, handling and bagging of the potatoes as would ensure their being placed on the market in satisfactory condition. In addition the Ministry endeavoured, by every means in its power, to create a demand for the potatoes. For instance, a demonstration and window display on the premises of one of the largest Liverpool grocers was carried out, and, in order to encourage a direct demand from consumers, the Ministry arranged for the experimental handling and marketing in small bags of some 80 tons of potatoes from the area.

The various railway and shipping companies interested in the cross-channel marketing of potatoes were approached by the Ministry with a view to securing a reduction in the then existing potato freight rates. The companies concerned extended very sympathetic consideration to the representations, and specially reduced rates were quickly put into operation.

It is gratifying to report that, as a result of the various efforts made, the marketing of the surplus potatoes from this area was satisfactorily concluded.

In order to encourage in Belfast a demand for potatoes of the "Kerr's Pink" variety, which is very rapidly becoming popular not only with growers but also with merchants and consumers, the Ministry arranged for the distribution to retail merchants in Belfast of some 25 tons of ware potatoes of this variety and for the display in retailers' windows of posters drawing attention to the potatoes. It was reported that the retailers were well satisfied with the "Kerr's Pink" supplied to them, and that the variety will in future years find a ready sale in Belfast.

In recent seasons considerable difficulty has been experienced in disposing of potatoes of the "Lochar" variety at reasonable prices in cross-channel markets. This variety comprised the bulk of the potato crop in the county Down scheduled area. British importing merchants during the shipping season of 1925-26 found this variety so unsatisfactory that, in certain cases, they intimated that in the next season they either would not accept "Lochar" at all or would take the variety only at substantially reduced prices. In order, therefore, to assist growers to replace "Lochar," the Ministry distributed on special terms 1,157 tons of seed of more suitable varieties, mainly "Arran Victory." Further, a circular of which a copy appears on page 126 of the appendices was issued to farmers in the district affected, advising them strongly to discontinue the growing of the "Lochar" variety.

The satisfactory results achieved by the taking of the steps outlined above is clearly demonstrated by the figures showing the acreage under the different varieties of potatoes in Northern Ireland in 1926 and in previous years. For example, in 1926, 4,396 acres of "Lochar" were planted in place of the 10,328 acres planted in 1925, while 48,786 acres of "Arran Victory" were planted as compared with 41,755 acres in 1925; 24,240 in 1924, and 11,278 acres in 1923.

Inspection of Potatoes for Export.

Scheduled Areas.

The exports from the county Down scheduled area during the past four shipping seasons were as follows :—

1922-23	34,140	tons.
1923-24	47,540	,,
1924-25	39,371	,,
1925-26	55,417	,,

It will be observed that the exports during the past season were some 16,000 tons in excess of the shipments for the previous year, and approximately 8,000 tons over the exports for the season 1923-24.

In addition to the inspection of potatoes shipped from the above-mentioned area potatoes exported from the south Londonderry and east Tyrone scheduled areas and the adjoining territory were also inspected prior to shipment. During the period between November, 1925 and June, 1926, 17,595 tons were so inspected before export.

Non-Scheduled Areas.

As in the case of the scheduled area exports of potatoes inspected and certified from the non-scheduled districts also show an increase over previous seasons. The total quantity inspected and exported from non-scheduled districts was 7,280 tons as com-

pared with 7,075 tons for the previous season, and 3,500 tons in the 1923-24 shipping season. Particulars as to the principal countries to which this year's inspected shipments from non-scheduled areas were sent were as follows :—

Malta	3,778	tons
Canary Islands	2,902	,,
Other countries	600	,,
Total	7,280	tons

It may here be observed that out of a total of 163,337 tons of potatoes exported from Northern Ireland during the period under review over 80,000 tons, or practically half the total quantity exported, was inspected and certified by the Ministry's Inspectors before being shipped. Consequently, to a large extent the way is paved for a general system of grading and inspection of exported potatoes.

As well as issuing certificates regarding the quality of these consignments the Ministry also gave health certificates in accordance with the regulations of the countries to which the potatoes were exported. Certificates which specified that localities were free from black scab were issued for 139 consignments of potatoes exported to England, Wales and the Channel Islands. While similar certificates in respect of 524 consignments intended for Scotland were granted in compliance with the Irish Potatoes Importation (Scotland) Order, 1925, to which special reference was made in the Ministry's last Report.

Relaxation of Maltese and French potato import regulations.

During the year the Ministry was able to secure two important concessions in favour of the potato export trade of Northern Ireland.

In January last the Maltese Authorities made a Regulation to the effect that in addition to the documents previously required in the case of the importation of seed potatoes into Malta, it would be necessary for each consignment to be officially certified by the appropriate authority in the exporting country as being free from corky scab.

Strong representations were made to the Ministry by merchants to the effect that the enforcement of the new Regulation would render it exceedingly difficult to carry on the trade in seed potatoes which, for many years, had existed between Northern Ireland shippers and Maltese importers with mutual satisfaction to both parties.

The Ministry, therefore, caused representations to be made to the Maltese Authorities, with a view to the modification of the new regulation. These representations received favourable consideration, and the Ministry has now been notified that the Maltese Corky Scab Regulation has been cancelled.

In the case of France, the Ministry was able to secure that in future potatoes from Northern Ireland will be admitted into France, provided that they are accompanied by a certificate from the Ministry stating that the potatoes are free from black scab disease and have been grown on land not less than 5 kilometres from any land infected with black scab disease. Under the original regulations of the French Authorities, potatoes could not be imported into France unless officially certified as having been grown outside a 20 kilometre radius from any case of disease.

Potatoes Importation (Ireland) Order, 1920.

The importation of potatoes from Great Britain is governed by this Order and under its provisions 141 licences were granted for the importation of 137 tons of seed potatoes. 125 tons were imported from Scotland and were chiefly composed of the varieties Arran Consul, Great Scot, British Queen and Golden Wonder. The balance of 12 tons was imported from England and was principally made up of the varieties British Queen, Epicure, Edzell Blue and Kerr's Pink.

Immune varieties and inspection in Scheduled Districts.

The list of approved immune varieties of potatoes which may be planted in scheduled areas without a licence was increased to 24 during the year by the inclusion of the four varieties, Abundance, Arran Consul, Ben Cruachan, and Dunaverney. In addition to the varieties on the approved list the planting of certain other immune varieties was permitted under licence from the Ministry. Thirty-six such licences were granted principally for the varieties Di Vernon, Immune Ashleaf and King George V.

During the summer of 1926 all crops of potatoes in the scheduled area were inspected with a view to ensuring that only immune varieties were grown and certificates as to purity were issued for all satisfactory crops. A few notices for the removal of "rogues" were issued, and compliance was secured in each instance.

Inspection of Growing Crops of Potatoes outside the Scheduled Area.

The scheme outlined in previous reports for the inspection of growing crops of potatoes was again in operation during the year, and every effort was made by the Ministry to make it as widely known and as fully utilized as possible.

Subsequent to inspections purity certificates were issued in respect of 1,122 crops of immune varieties of potatoes representing an area of 2,135 acres. Purity certificates were also issued as in previous years in respect of 652 crops of certain non-immune varieties, covering an area of 1,648 acres.

With regard to crops of potatoes which on inspection were found not up to the standard to qualify for a purity certificate, but which revealed a standard of purity of not less than 97%, 230 certificates

were issued which enabled the holders to comply with the relevant provisions of the Seeds Act, 1920, when disposing of the produce of these crops in England and Wales.

Experimental Work.

The experiments with potatoes which the Ministry carried out during the year again followed the lines of those undertaken in previous years. The results of the experiments are published in leaflet form at the end of each season, and copies of the leaflets may be had on application to the Ministry.

1. *Variety Trials.* (a) Forty-eight varieties were tested at Stormont, Belfast, and the North West Agricultural School, with a view to determining the merits of the new varieties placed on the market.

(b) Comparative tests were made at ten centres in the scheduled area of the following varieties with a view to discovering new immune varieties suitable for the replacement of the non-immune varieties at present widely grown :—

Arran Consul.	Ben Cruachan.
Arran Victory.	Dunaverney.
New Templar.	Kerr's Pink.
Great Scot.	Lochar.

Of the new varieties tested, Arran Consul has given the best results and promises to be the most suitable variety for growing in the scheduled districts for export purposes.

2. *Change of Seed Tests.* With a view to comparing seed potatoes procured from various sources, twelve varieties procured from different areas were tested against stocks of similar varieties grown at Stormont and Dundonald for several seasons. In these tests very large differences were obtained in favour of the stocks of seed from the outside areas. This was due to the fact that the crops grown for several years at Stormont and Dundonald had become affected with various diseases—e.g., Mosaic and Leaf-roll, whereas the crops from the other areas were comparatively healthy.

The experiment carried out last year with a view to comparing seed obtained from clay soil with that obtained from bog soil was again continued at Strabane. The produce from the plots grown in 1925 was planted in 1926, but so far no advantage in favour of either kind of seed has become evident.

3. *Effect of planting seed at different distances apart.* This test was carried out at Stormont on similar lines to those of last year. The distances at which the seed was planted apart were twelve, sixteen and twenty inches. The differences in the results as regards yield were small, but the tubers obtained from closer planting were the more uniform in size and shape and more attractive for marketing purposes.

4. *Tests of different methods of cutting seed.* These trials were continued at Strabane on the same lines as in 1925, the seed being cut as follows :—three weeks, two weeks, one week before planting, and day of planting.

5. *Immunity trials.* The Ministry received eighty-four varieties for testing in accordance with the arrangement mentioned in previous reports whereby varieties of potatoes which are being tested for immunity at Ormskirk, England, and Phillipstown, Scotland, are also tested at the Kilkeel trial grounds. Thirty of these varieties were received from the English Ministry, thirty-three from the Board of Agriculture for Scotland and twelve from Potato raisers in Northern Ireland.

Unofficial tests to assist potato raisers in ascertaining in an early stage of propagation whether new varieties are immune were made of approximately 140 varieties submitted. In addition, 86 varieties submitted by local growers and Inspectors were tested both for identification and for immunity.

6. *Potato Demonstrations.* During the year five demonstrations were held by the Ministry at Stormont and from the number of people who attended these demonstrations it would appear that a greatly increasing interest is being taken in this important branch of agriculture.

11. Forestry.

The total area available for afforestation purposes at Baronscourt centre is 2,894 acres, of which 1,337 acres, including 179 acres of young wood, have actually been taken over by the Ministry.

Certain lands situated at Hillsborough, County Down, which had been purchased by the Imperial Government, and which it had been decided should be transferred to the Government of Northern Ireland, were made available for forestry purposes towards the latter end of the year under review. The lands in question comprise an area of approximately 435 acres and already preparatory work has commenced with a view to making the lands ready for planting.

In the following table particulars are given for each centre of the total area available to the Ministry for forestry purposes, the area planted up to 30th September, 1921, the area planted in each succeeding year, and the area proposed to be planted in 1926-27 :—

Centre	Total Area	Area planted up to 30th September, 1921	Area Planted					Total area planted up to 30th September, 1926	Area proposed to be planted in 1926-27
			1921-22	1922-23	1923-24	1924-25	1925-26		
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Baronscourt	2,894	*179	293	174	211	179½	189¼	1,225¾	260
Ballykelly	254	53½	20½	9½	12	7½	7	†110	—
Castlecaldwell	303	103	41	26½	19½	—	13	†203	14½
Knockmany	468	168	23	34½	19½	20	22	†287	30
Newcastle	582	—	—	—	62	73	117¼	252¼	250
Hillsborough	435	—	—	—	—	—	—	—	—
Totals	4,936	503½	377½	244½	324	280	348½	2,078	554½

*This area was under young wood when the land was acquired. Since that time 29 acres of the land have been cut over, of which four acres have been replanted.

†In addition the following areas are under old wood :—Ballykelly, 140 acres; Castlecaldwell, 70 acres; Knockmany, 125 acres.

At Newcastle centre it was found desirable to have a slight readjustment made in the boundary of the lands, and after negotiations with the lessors a further area of approximately 4 acres was taken over by the Ministry on the same terms as those on which the remainder of the land had been acquired.

With the object of providing work in connexion with forestry operations for a number of unemployed labourers, a grant was made by the Government which was utilized in accelerating the operations at the larger centres—Baronscourt, Newcastle and Knockmany. The number of additional labourers varied with the season, and was about 35 at the busiest time.

The plantations made at the several centres during the past season, covering an area of 348½ acres, were in all cases coniferæ, the species being :—

Norway and Sitka Spruce ...	57.3%
Douglas Fir	24.2%
European and Jap Larch ...	8.0%
Scotch and Corsican Pine ...	7.7%
Others	2.8%

In accordance with Section 32 (1) and (2) of the Irish Land Act, 1909, occupiers of holdings purchased under the Irish Land Acts are obliged to obtain permission from the Ministry before they can cut down or uproot trees which are necessary for the ornament or shelter of the holdings. During the year 33 such applications were received, and in 25 cases the desired permission was granted. Of the remaining 8 applications six were not proceeded with and two are under consideration.

12. Statistics and Intelligence.

As in the three preceding years the annual agricultural returns for 1926 were collected through the medium of the Royal Ulster Constabulary. The particulars obtained may be summarized under the following headings :—

Area under crops and division of land.
Area under different varieties of potatoes.
Area under different varieties of fruit.
Area intended to be saved for grass seed.
Numbers of each description of live stock.
Numbers of deaths amongst cattle from specified diseases.
Numbers of deaths amongst live stock from all causes.
Numbers of births of foals, calves, lambs and pigs.
Numbers of persons engaged in agriculture.
Numbers of persons occupying more than one farm.
Numbers of farms extending into more than one emuneration district.
Numbers of stocks and quantity of honey and wax produced.
Numbers and area of trees planted and felled.
Numbers and capacity of scutching mills.
Numbers of holdings accordings to size.

Five hundred and forty members of the Royal Ulster Constabulary were engaged as enumerators from the 1st June until the particulars were completed for each of the six hundred and thirty-four emuneration districts into which the country was divided for the purposes of the collection.

The first abstract returns of the areas under crops and numbers of live stock in respect of each of the enumeration districts were received in the branch on the 23rd June, and thereafter returns were received at short intervals until 26th July, when the last return was received. A preliminary check of each abstract return was made immediately upon its receipt, and the staff engaged for the work then proceeded to compile statistics for each rural district in the area. A further comparative check was applied to the totals of each rural district, and any apparent discrepancies enquired into and rectified. Totals were then made for each county and for the province as a whole.

In previous years the Preliminary Statement was the only publication issued showing the acreage under crops and the numbers of live stock in the province and, therefore, care was taken to ensure as far as possible that the figures appearing in this statement were final. With the resumption of the publication of an annual statistical report it has become less important that the preliminary figures should be meticulously correct than that they should be published at the earliest possible date. It was thus possible to issue the Preliminary Statement for 1926 on August 5th, a fortnight earlier than in 1925, and practically a month earlier than in 1924. It is satisfactory to be able to record that subsequent checking and scrutinizing of the actual police abstracts has not led to any material alteration in the figures published at the beginning of August, which remain substantially unchanged.

During the latter months of each year estimates are obtained through the Royal Ulster Constabulary regarding the yields of the different cereal and root crops. In August, October and November each enumerator visits a number of farmers in his district and obtains

(a) estimates as to the yield of the hay crop;
(b) estimates as to the yield of the cereal and potato crops;
(c) estimates as to the yield of the root crops and flax.

The visits are paid to those farmers who, in the opinion of the enumerators, are most competent to give the particulars desired, and upon each occasion in 1925 about 3,000 farmers supplied estimates as to the average yield of crops in their neighbourhoods. Average yields were thus arrived at for each enumeration district, and estimates of total production were then calculated for each rural district and county, and for the whole province. The results of these estimates were published as soon as the figures were available, five different statements being issued as follows :—

Hay	October, 1925.
Grain	December, 1925.
Potatoes	December, 1925.
Turnips and Mangels	January, 1926.
Flax	January, 1926.

In February a collected statement was issued with notes on the production and yield of each crop.

During the year a considerable amount of time and effort was devoted to the preparation of a Report upon the Agricultural Statistics of Northern Ireland for 1925. This report, which was issued in October, 1926, is the first report which has been published upon the agricultural statistics of any part of Ireland since the Department of Agriculture and Technical Instruction issued in 1921 the last of the long series of reports upon the agricultural statistics of the whole of Ireland, which extend from 1847 to 1917. The report afforded the first opportunity of passing in review the progress of the agricultural industry during the critical periods of the war and the post-war depression. Accordingly, although primarily concerned with the results of the 1925 season, the report also deals with the increased tillage campaign of 1914-1918, the decline in the ploughed area which has occurred since the war and the principal changes which have taken place in the crops and live stock of the province since 1914. The revision of the agricultural returns for the years 1919-22, to which reference has been made on previous occasions, is also dealt with.

The tables appended to the report contain in detail the main particulars collected in the years 1923 to 1925, and give for each county the division of land and the area under different crops, the production and yield of crops and the numbers of live stock, together with the numbers of persons engaged in agriculture, and the numbers of holdings according to size. For the year 1925 particulars of areas under crops and numbers of live stock are shown for each rural district. A section of the report has also been devoted to the prices prevailing for live stock, agricultural commodities, fertilizers, feeding stuffs and agricultural seeds during the period 1922 to 1925, and a number of tables showing the prices obtained for the principal commodities during this period have been included. The report, which is entitled " First Annual Report upon the Agricultural Statistics of Northern Ireland," is published by H.M. Stationery Office, and may be obtained directly from their office at 15 Donegall Square West, or through any bookseller, price 2/- net.

Imports and Exports of Animals.

At the transfer of certain of the Council of Ireland Services to the Government of Northern Ireland on the 1st of April, 1926, the Diseases of Animals Services, including the collection of statistics of imports and exports of animals, were transferred to the Ministry. In the short time which has elapsed it has not been

possible to do more than continue, in conjunction with the Department of Statistics of the Irish Free State, the publication of weekly and monthly figures regarding the numbers of live stock exported from ports in Northern Ireland. It is, however, hoped in future to make fuller use of these figures and the channels of collection, more especially in obtaining information in assessing values of animals exported and imported. The question as to the annual publication of figures is at present under consideration.

Agricultural Prices.

In pursuance of the policy, referred to in the Ministry's fourth annual report, of disseminating reliable information regarding current prices of agricultural produce a statement has been issued each week showing the average prices realized by farmers from the sale of certain classes of their produce. The information given in these statements is based on reports received from nine of the principal markets held weekly in Northern Ireland. The Press has afforded excellent publicity to this table, and a considerable number of agriculturists and other interested persons have requested that copies should be sent direct to them each week. The inclusion in the statement of particulars for the corresponding week in the previous year affords an opportunity for the study of the trend of prices and of their relation to production.

Reports of the trade in live stock at nineteen of the principal monthly fairs in Northern Ireland and at the Belfast Weekly Cattle Market were issued regularly throughout the year to the Press and to persons interested. Summaries of these prices were also published in the Ministry's Monthly Report referred to below.

The Monthly Report on agricultural conditions which was formerly issued in neo-styled form, has now been greatly enlarged. Commencing in April, 1926, a printed Monthly Report has been published, and has included a considerable number of new features. In addition to the usual monthly survey of agricultural conditions a special article dealing with the economic aspect of some particular phase of the agricultural industry has been a regular feature of each issue. The subjects of these articles have been carefully chosen in the hope of proving of assistance to farmers in the study of general conditions at home and abroad affecting the prosperity of the industry. A short section entitled "Farm Notes" deals with the general work of the farm with special reference to those phases of activity which should be specially attended to by farmers during the forthcoming month. A number of tables showing the average prices of feeding stuffs, the imports and exports of agricultural produce and, in the season, the average prices of fertilizers and agricultural seeds are also published. The Report is issued free, and it is gratifying to record that it has met with a widespread demand, and upwards of nine hundred copies are now issued each month.

Returns are received each week from seventy bacon-curers in Northern Ireland showing the number of pigs bought for curing, and these figures are summarized and issued to the Press and to the firms which furnish returns. In addition, a statement is issued each month showing the quantities and value (abstracted from the Trade and Navigation Returns) of the imports of pork and pork products into the United Kingdom.

Census of Production.

The greater part of the work involved in tabulating the additional particulars collected in 1925 in connexion with the Census of Production enquiry has been completed, but the work involved through the issue of the First Annual Statistical Report and, also, the issue of the enlarged Monthly Report has prevented any progress being made with the preparation of the Report upon the Census of Production. It is hoped, however, that this work will be commenced very shortly, and that a report will be issued during the course of 1927.

The importance of statistical enquiries regarding the development and use of the land are coming to be widely recognized, and at the General Assembly of the International Institute of Agriculture in 1924 a resolution was passed authorizing the Institute to promote the taking of an agricultural census in 1930 in all countries on a uniform plan. Practically all Governments have now agreed to co-operate in taking this World Census of Agriculture in 1929-30, and a Statistical Committee of Experts met in Rome in April of this year to consider a proposed standard form to constitute the basis for the census enquiry in all countries. The Superintendent of the Branch represented the Ministry on this committee.

Library.

During the year the library has rapidly increased in size, approximately 2,000 publications having been received during the period, in addition to about 700 separate issues of different periodicals. A large number of farming journals and the official gazettes and parliamentary reports of Northern Ireland and the Irish Free State were also received. The publications now in the library number 12,000, and these are in continual reference use.

A regular exchange system is in operation between the Ministry and a large number of other agricultural departments and colleges not only in Great Britain, but also in the Colonies, the United States and many foreign countries. Many of the publications which are at present in the library have been obtained through this system, and the Ministry is deeply indebted to numerous agricultural bodies at home and abroad which have supplied the library with their published literature. They have also frequently answered inquiries regarding the progress of their research and experimental work, and supplied unpublished information of great value to the Ministry.

The library is the recognized source for obtaining information on matters pertaining to agriculture generally, and, in particular, regarding the progress of research work in other countries. In this connexion it is interesting to note that the number of publications issued on loan to officers of the Ministry showed an increase of approximately 50% as compared with the previous year, whilst the number of references required to be made by the library staff also increased very considerably during the twelve months.

An important part of the work carried out by the library staff is the translation of laws and enactments relating to agriculture and of articles dealing with the results of experimental and research work in other countries. In the period under review the number of such translations made was double that in 1924-25.

Leaflets.

The intelligence work of the branch comprises not merely the collection of information for the Ministry, but also the dissemination among farmers of published information regarding agricultural practice. Since the inception of the Ministry leaflets covering many branches of agriculture have been prepared by members of the technical and research staffs. The following additions were made during the year under review :—

The Rearing and Management of Young Horses.
Ordnance Survey Maps for Farmers.
Clean Eggs.
The Construction of a Laying House for Poultry.
The Selection and Breeding of Laying Hens.
Coccidiosis in Poultry.
Roup in Poultry.
Spraying Calendar for Apple Orchards.
The Pruning of Apple Trees.
The Fattening of Pigs.
Advantages of Milk Recording.
The Raising and Feeding of Turkeys.
The Destruction of Charlock.
The Production of Clean Milk.
The Laying Down and Management of Temporary Pastures.
Blackleg, Blackquarter or Quarter-ill.
The Compounding of Balanced Rations for Dairy Cows.

Circulars.

Phosphatic Fertilisers for 1925-26.
Experiments with Varieties of Crops, 1925.
Decorticated Cotton Cake.

The publication and distribution of the Ministry's leaflets constitutes an educational service, the importance of which it is probably difficult to overestimate, for this literature in which the results of the application of scientific research to agriculture is

being made known is being read avidly by the farming community. During the period January 1st, 1922, to September 30th, 1926, no less than 385,000 leaflets on agricultural subjects have been distributed throughout the country. During the year covered by the present report there were no less than 3,200 individual applications for leaflets received, while 175,000 leaflets were issued from the Branch as compared with 80,000 during 1924-25.

A number of individual enquiries from farmers regarding subjects cognate to those dealt with in leaflets were also received and dealt with.

Publicity.

A considerable number of Press paragraphs directing the attention of farmers and of the general public to different subjects calling for special notice were issued. A number of articles dealing with different phases of agriculture in Northern Ireland were also contributed to various organs of the Press.

Market Intelligence.

In connexion with the dairying industry the Ministry continued to issue daily market reports regarding prices of butter at the principal cross-channel centres at which Northern Ireland creamery butter is marketed. Nineteen creameries are participating in the scheme for the current year.

A report is received each Friday giving prices of fruit at Belfast Market, and a copy is issued to each of the horticultural instructors employed in the counties with a view to enabling them to give advice to horticulturists with regard to the marketing of their produce.

In connexion with the Christmas poultry export trade, the Ministry collects in November of each year through the itinerant instructors in poultry keeping, information regarding the supply of poultry in each county. These reports are summarized and a statement on the subject is issued to the Press and to the poultry shippers. In addition, information regarding the probable extent of foreign competition on the British market is sent to the shippers.

13. Administration of the Diseases of Animals Acts, 1894-1922.

Transfer of Administration.—The administration of the above-mentioned Acts was, by sub-section 2 of section 10 of the Government of Ireland Act, 1920, made a Council of Ireland service. In the absence of a Council of Ireland as contemplated by that Act, the administration in Northern Ireland of the Diseases of Animals Acts was, as a temporary arrangement, made an Imperial Service as from the 1st April, 1922. By the Ireland (Confirmation of Agreement) Act, 1925, the necessary powers were as from

the 1st April, 1926, transferred to the Government of Northern Ireland and, as a result of the Administrative Provisions Act (Northern Ireland), 1926, became exerciseable by the Ministry of Agriculture for Northern Ireland.

Orders in Force.

Immediately prior to the transfer of the administration to the Ministry, new Orders were made as follows by the Imperial Authorities in consultation with the Ministry :—

The Animals Disinfection (Northern Ireland) Order, 1926.— This Order prescribed the methods of cleansing and disinfection as regards any place or thing of which the cleansing and disinfection is required by the provisions of any Order made under the Diseases of Animals Acts. The Order includes within its scope, in addition to vessels and railway vehicles used for the conveyance of animals, motor vehicles similarly used and road vehicles used in certain circumstances.

The Bovine Tuberculosis (Northern Ireland) Order, 1926, revokes the Bovine Tuberculosis (Ireland) Order, 1914, in so far as it applied to Northern Ireland, and aims at greater efficiency combined with administrative economy. The new Order provides that the Tuberculin Test is to be applied by local veterinary officers only when absolutely necessary for the correct diagnosis of disease. Concurrently with the issue of the Order modified scales of fees and travelling expenses for local officers were brought into force. The Order also provides for the notification of the existence, or suspected existence, of the disease by veterinary inspectors employed under the provisions of the Dairies, Cowsheds and Milk Shops (Ireland) Order of 1908.

The Ministry, since it has become responsible for the administration in Northern Ireland of the Diseases of Animals Acts, has made three Orders as follows :—

The Landing of Carcases Order of 1926, which prohibits the landing in Northern Ireland of carcases brought from any European country outside Great Britain, the Irish Free State, the Channel Islands and the Isle of Man. The Order is on similar lines to Orders made by the British Ministry of Agriculture and Fisheries and the Department of Lands and Agriculture for the Irish Free State. It will be recollected that the outbreaks during the past summer of foot-and-mouth disease in Lanarkshire were directly traced to infection from carcases imported from the Continent, and the Orders referred to were made with a view to precluding the possibility of further infection from that source.

The Landing of Plants (Northern Ireland) Order, 1926, is designed to eliminate another possible source of infection by requiring the destruction of materials used in the packing of plants imported into Northern Ireland from the Continent of Europe.

The Peat Moss Litter (Prohibition) Order, 1926, has been made with a similar intention and prohibits the importation into Northern Ireland of peat moss originating anywhere in Europe, with the exception of the Irish Free State. A similar Order has been made by the Department of Lands and Agriculture for the Irish Free State.

In addition, the Swine Fever (Ireland) Order of 1900 has been adapted for use in Northern Ireland under the title of "The Swine Fever (Northern Ireland) Order of 1926." The adaptation in question has not in any way modified the existing policy or procedure with regard to swine fever.

The Foot and Mouth Disease (Disinfection of Persons) (Northern Ireland) Order of 1923.—The Ministry is anxious to draw particular attention to the need for a strict compliance with the provisions of the above-mentioned Order if a serious risk of the introduction into Northern Ireland of foot-and-mouth disease is to be precluded. The Order makes it necessary for all persons landing at a Northern Ireland port who, prior to their landing, may have been concerned with the sale of animals in Great Britain or who may have been in contact with animals either in Great Britain or during transit to or from Great Britain, to submit themselves and their equipment to disinfection on arrival at a Northern Ireland port.

It was found necessary in July last to institute proceedings against three cattle dealers for offences against the provisions of the Order and in each case fines and costs were imposed.

Outbreaks of Animal Diseases.

It is a matter for considerable gratification that during the period covered by this report Northern Ireland remained free from foot-and-mouth disease, the unfortunate prevalence of which in Great Britain rendered it necessary to impose the usual restrictions on the importation from Great Britain of animals and articles likely to convey infection.

No foreign animals were landed and found diseased during the period under review.

The following table gives information as to the outbreaks of disease during the period from the 1st January to the 2nd October, 1926 :—

	Bovine Tuberculosis		Parasitic Mange	Sheep Scab	Swine Fever	
Period.	Outbreaks	Animals declared affected	Outbreaks	Outbreaks	Outbreaks	Swine slaught'ed as diseased or exposed to infection
Period from 1/1/26 to 2/10/26	474	489	4	50	17	202

Transit of Animals.

This most important matter has continued to receive the closest attention not only of this Ministry but also of the administering authorities in both Great Britain and the Irish Free State. At a conference held in London in June, 1926, representatives of the three Departments agreed to the general lines on which the existing Transit of Animals Orders should be amended. As a result new Orders will be made at an early date simultaneously for Great Britain, the Irish Free State and Northern Ireland. The new arrangements will ameliorate very considerably the conditions of cattle transit in Great Britain and Ireland and more particularly during shipment from Irish to British ports.

Transit of Poultry.

It has been realized for some time past that the conditions under which live poultry are carried are not entirely satisfactory. Negotiations are at present taking place with the British and Free State Departments with a view to the conveyance of live poultry under improved conditions. The problem, however, is by no means simple, the chief practical obstacle being the difficulty of finding a satisfactory method of watering birds on the journey to their destination in Great Britain. With a view to solving this difficulty the Ministry proposes to carry out immediately experiments in order to test the efficacy of certain suggested methods of watering.

14. Surveys.

(a) *Ordnance Survey.*

Revision of 6″ Maps.—It will be recollected that, as was mentioned in the Ministry's first annual general Report, when the administration of the Ordnance Survey of Northern Ireland was vested in the Ministry it was decided, in the interests of economy, to suspend the revision of the 6″ maps of Northern Ireland and to continue only the revision of the maps on the 25″ scale.

Experience, however, has since shown that an adherence to this decision is not practicable, inasmuch as it would not be feasible to substitute the 25″ map for the 6″ map, which is the statutory map in Northern Ireland. Furthermore, up-to-date maps on the former scale are essential to the work of other public departments such as the Valuation Branch of the Ministry of Finance and the Land Purchase Commission. In view of all the circumstances it has been decided to resume the work of revising the 6″ maps. Arrangements for the resumption are under consideration, and it is hoped to commence operations in the near future.

Field Work.—During the year the survey ground staff was occupied with the continuance of the revision of the 25″ plans of the county of Londonderry and with the revision of the plans on

the same scale of the urban district of Bangor. Seventy-one thousand, two-hundred and fifty-five acres, together with boundaries, were revised in the county of Londonderry and 177 miles were relevelled. The revision of the urban district of Bangor was completed and an up-to-date map on the 6″ scale is now in course of preparation.

Drawing and Printing.—Revised maps, on the 25″ scale covering almost 36,000 acres in the counties Antrim and Londonderry, were drawn, but in view of the printing work involved by large demands for maps from the general stock of the Department it was found practicable to complete and publish only 41 maps from the revised drawings. In all, some 12,000 maps on various scales were printed during the year.

Special Road Map.—The special road map of Northern Ireland, which was prepared in conjunction with the Ministry of Home Affairs, was issued in September. The issue was delayed in consequence of the reclassification of certain roads.

Sales of Maps.—The operation of the Land Purchase Act in Northern Ireland again stimulated a demand for Ordnance Survey maps.

In all 22,694 maps, to a net value of some £2,000 were sold during the year.

Issues under Copyright Act.—Presentation copies of maps published during the year have been issued from the Survey Department to comply with the obligations imposed by the provisions of the Copyright Acts. A special issue of a set of 25″ scale maps, covering the whole of the area of Northern Ireland and comprising 3,647 individual sheets was made to the Library of the Cambridge University.

Stock.—On the 31st March, 1926, the total stock of maps of all scales held at the Survey Office was 136,146.

General.—Assistance was rendered by the Ordnance Survey Department in connexion with the work of the Land Judges Court and the taking of the Northern Ireland census.

Official Honoured.

Mr. Henry Mussen having completed 43 years' service in the Ordnance Survey Department retired on superannuation on the 31st May, 1926. In recognition of his long and meritorious service His Majesty the King was graciously pleased to award to Mr. Mussen the Imperial Service Medal, which was formally presented to him by the Minister in the presence of many of his former colleagues.

(b) *Geological Survey.*

The Ordnance Survey Department was in a position to supply the small demand for copies of the memoirs to accompany geological maps. Facilities were again afforded to persons interested for reference to the original field documents which are in the Ministry's possession.

I have the honour to be,

Your Grace's faithful Servant,

E. M. ARCHDALE,

Minister.

JAMES S. GORDON,

Secretary.

MINISTRY OF AGRICULTURE,
WELLINGTON PLACE,
BELFAST.

31*st December*, 1926.

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Officials of County Committees of Agriculture.

ANTRIM:

Chairman: ... *J. Stouppe F. M'Cance, D.L., J.P., Woodburn, Dunmurry.
Secretary: ... A. B. Clarke, B.A., County Courthouse, Belfast.
Instructors: ... P. T. O'Hare, A.R.C.Sc.I. (Agriculture).
R. D. Mackay, N.D.A., N.D.D. (Hons.) (Agriculture).
R. H. Clarke (Horticulture and Bee-keeping).
W. R. Saunderson (Horticulture and Bee-keeping).
Miss A. M. Nedwill (Poultry-keeping and Butter-making).
Miss A. Mahony (Poultry-keeping and Butter-making).
P. M'Hugh (Agricultural Overseer).
J. M'Dowell (Agricultural Overseer).

*Died 23rd August, 1926.

ARMAGH:

Chairman: ... J. J. W. Dunlop, Rosemount, Annaghmore.
Vice-Chairman:... R. R. Murphy, J.P., Lislea, Keady.
Secretary: ... R. T. Huston, M.R.C.V.S., Dean's Bridge, Armagh.
Instructors: ... J. Bradshaw, B.Sc. (Ag.), N.D.A. (Agriculture).
J. Hagan (Horticulture and Bee-keeping).
J. Scrimgeour (Horticulture and Bee-keeping).
Miss A. G. English (Poultry-keeping and Butter-making).
J. Graham (Agricultural Overseer).

DOWN:

Chairman: ... James Ireland, J.P., Ivyholme, Lessans, Saintfield.
Vice-Chairman:... George Wallace, J.P., Lakeview, Corbet, Banbridge.
Secretary: ... A. J. Morrow, 2 Avonmore Terrace, Balmoral, Belfast.
Instructors: ... R. W. Dickson, A.R.C.Sc.I. (Agriculture).
J. Morrison, B.Sc., N.D.A. (Agriculture).
T. Scott (Horticulture and Bee-keeping).
D. W. Baillie (Horticulture and Bee-keeping).
Miss W. M'Mullen (Poultry-keeping and Butter-making).
Miss L. Walters (Poultry-keeping and Butter-making).
J. G. Jamieson (Agricultural Overseer).
V. Boyce (Agricultural Overseer).

FERMANAGH:

Chairman: ... Rev. Canon John Hall, Garvary, Enniskillen.
Vice-Chairman:... John E. F. Collum, H.M.L, J.P., Bellevue, Enniskillen.
Secretary: ... W. H. West, Courthouse, Enniskillen.
Instructors: ... D. T. Ritchie (Agriculture).
A. E. Johnston, A.R.C.Sc.I. (Horticulture and Bee-keeping)
Miss M. J. O'Hanlon (Poultry-keeping).
J. J. M'Ferran (Agricultural Overseer).
T. C. Skelly (Agricultural Overseer).

LONDONDERRY.

Chairman: ... Robert Guthrie, J.P., Sheep Hill, Ballykelly.
Vice-Chairman:... H. E. Thompson, J.P., M.B.E., Ultimo House, Coagh, Moneymore.
Secretary: ... T. K. Caldwell, Courthouse, Coleraine.
Instructors: ... D. R. Aiken (Agriculture).
A. M'L. May (Horticulture and Bee-keeping).
Miss G. M'Lean (Poultry-keeping and Butter-making).
Miss E. E. Clarke (Poultry-keeping and Butter-making).
A. J. M'Farland (Agricultural Overseer).
E. Graham (Agricultural Overseer).

TYRONE.

Chairman: ... John Johnston, Mountjoy East, Omagh.
Vice-Chairman:... Thomas Hegan, J.P., Desertcreat, Tullyhogue.
Secretary: ... W. Walsh, Courthouse, Omagh.
Instructors: ... E. S. Daly, A.R.C.Sc.I. (Agriculture).
W. J. Patterson, A.R.C.Sc.I., N.D.A. (Agriculture).
S. J. Magill (Horticulture and Bee-keeping).
Miss M. H. Davidson (Poultry-keeping).
Miss M. A. C. Woods (Poultry-keeping).
P. Dolan (Agricultural Overseer).
J. M. Flanagan (Agricultural Overseer).

Account of Parliamentary Grants in the year ended 31st March, 1926.

Vote Class V. No. 1, Ministry of Agriculture.
(Moneys voted by Parliament to defray the Salaries and Expenses of the Ministry of Agriculture).

RECEIPTS.	£	s	d
Parliamentary Grant ...	49,476	0	0
Appropriations-in-Aid ...	229	4	1
	£49,705	4	1

PAYMENTS.	£	s	d
Salaries, Wages and Allowances ...	38,720	14	0
Travelling Subsistence & Removal Expenses ...	4,235	10	11
Rent and Rates ...	465	11	8
Fuel, Light, Water, Cleaning Articles, etc.	270	4	5
Maintenance & Repairs...	192	6	8
Furniture & Fittings ...	—		
Printing ...	1,469	19	2
Stationery, Books and Office Supplies ...	710	3	11
Stationery Office Publications (N.I.) ...	111	17	11
Law Charges ...	22	3	4
Postage, Telegrams and Telephones ...	1,871	19	4
Incidental Expenses ...	616	5	2
Balance on 31st March, 1926 (to be surrendered)	1,018	7	7
	£49,705	4	1

Account of Parliamentary Grants in the year ended 31st March, 1926.

Vote Class V. No. 2, Ministry of Agriculture.

(Moneys voted by Parliament to defray the expenses of the Ministry of Agriculture in respect of Agricultural Education and Research, Improvement of Live Stock, Agricultural Development, Agricultural Statistics and Afforestation, including Sundry Grants-in-Aid and certain capital expenditure under 14 and 15 Geo. V., Chap. 13, s.i. (N.I.)

RECEIPTS.	£	s	d
Parliamentary Grant	81,932	0	0
Appropriations-in-Aid	23,516	7	6
	£105,448	7	6

PAYMENTS.	£	s	d
Agricultural Research and Faculty of Agriculture	14,918	18	3
Building Grant to Queen's University	6,103	2	6
Agricultural Education (net)	14,963	3	1
Superannuation of Teachers	102	5	10
Improvement of Live Stock	8,439	9	10
Live Stock Breeding Acts	316	14	11
Animal Quarantine Station	200	11	3
Replacement of Live Stock	2,430	3	6
Poultry Industry	276	10	0
Marketing of Eggs	1,599	6	6
Dairying Industry	240	11	5
Grants to County Committees	27,732	7	6
Grants to Agricultural Societies, etc.	2,182	19	6
Building Grant to Royal Ulster Agricultural Society	2,000	0	0
Flax & Potato Industries	7,962	18	1
Seed Supply Schemes	3,719	16	1
Stormont Farm	—		
Weeds Act	512	18	11
Forestry	4,393	9	8
Unemployment Relief Works (Forestry)	550	14	7
Collection of Agricultural Statistics	3,205	9	7
Agricultural Exhibit—British Empire Exhibition, 1925	91	15	10
Special Services	—		
Miscellaneous	314	2	4
Balance on 31st March, 1926 (to be surrendered)	3,190	18	4
	£105,448	7	6

Account of Parliamentary Grants in the year ended 31st March, 1926.

Vote Class V. No. 3, Ministry of Agriculture.

(Moneys voted by Parliament to defray the expenses of the Ministry in respect of Ordnance Survey and Geological Survey).

RECEIPTS.	£	s	d
Parliamentary Grant ...	8,311	0	0
Appropriations-in-aid ...	2,685	10	8
	£10,996	10	8

EXPENDITURE.	£	s	d
Salaries, Wages and Allowances ...	7,583	3	6
Travelling Subsistence and Removal Expenses	73	8	7
Rent and Rates ...	254	8	4
Fuel, Light, Water, Cleaning Articles, etc.	98	6	11
Maintenance & Repairs...	57	4	4
Furniture and Fittings...	21	8	7
Incidental Expenses ...	115	8	6
Postage, Telegrams and Telephones ...	53	17	2
Materials for Map Production ...	365	8	4
Geological Survey ...	—		
Balance on 31st March, 1926 (to be surrendered)	2,373	16	5
	£10,996	10	8

Suspense Accounts in the year ended 31st March, 1926.

Account.	Balance on 1st April, 1925. £ s. d.	Receipts in 1925-26. £ s. d	Payments in 1925-26. £ s. d	Balance on 31st March, 1926. £ s. d.
Exchequer Extra Receipts	—	151 3 11	151 3 11	—
Cost-of-living bonus recouped to County Committees of Agriculture and Technical Instruction and repayable by the Ministry of Education for Northern Ireland	3 3 2	—	3 3 2	—
Queen's University—Faculty of Agriculture ...	—	1,855 0 10	1,855 0 10	—
Insurance, Live Stock, etc	1 1 7	104 19 6	129 17 9	*23 16 8*
Loans, Live Stock	—	2,065 0 0	2,065 0 0	—
Loans, Agricultural, etc.	—	361 10 0	361 10 0	—
General	*2 10 5*	753 17 0	758 15 1	*7 8 6*
Works Services ...	*22 0 0*	28 3 9	6 3 9	—
	£20 5 8	5,319 15 0	5,330 14 6	*31 5 2*

Summary of Loan Accounts on 31st March, 1926.

Nature of Loan.	Loans outstanding on 31st March, 1925		Loans issued in 1925/26.		Principal repaid in 1925/26.	Interest received in 1925/26.	Loans outstanding on 31st March, 1926	
	No.	Amount.	No.	Amount.			No.	Amount.
		£ s. d.		£ s. d.	£ s. d.	£ s. d.		£ s. d.
For the purchase of stallions	20	1,199 8 11	7	511 13 4	415 12 7	56 7 7	25	1,295 9 8
For the purchase of bulls	2	69 6 0	—	—	—	—	2	69 6 0
For the purchase of agricultural machinery & implements	—	—	2	271 2 6	—	0 14 5	2	271 2 6
Total	22	1,268 14 11	9	782 15 10	415 12 7	57 2 0	29	1,635 18 2

Table showing by Counties the Amounts contributed from Local Rates, and the Amounts contributed by the Ministry for the purposes of Agricultural Schemes under Local Statutory Committees during the year ended 31st March, 1926.

COUNTY.	Rate in the £.	Total Produce of and Contributions from Local Rate.	†Contributions from the Ministry.			
			General Grant.	Additional Grant for Agricultural Development.	Agricultural Classes Grants.	Total.
	d.	£ s. d.	£	£ s. d.	£ s. d.	£ s. d.
Antrim	1	2,570 16 9	*4,815	963 5 8	79 16 0	5,858 1 8
Armagh	1	1,485 0 0	2,341	269 15 7	42 1 4	2,652 16 11
Down	1	3,272 0 0	4,006	779 12 5	108 7 6	4,893 19 11
Fermanargh	1	950 0 0	2,201	720 4 0	24 18 0	2,946 2 0
Londonderry	1	1,219 17 4	2,519	628 14 2	171 3 6	3,318 17 8
Tyrone	1	1,739 9 4	3,588	1,151 0 2	100 13 4	4,839 13 6
Total		11,237 3 5	19,470	4,512 12 0	526 19 8	24,509 11 8

*This includes a grant-in-aid of £1,000 in respect of Greenmount Agricultural College.

†The following grants, which were also paid to the Committees by the Ministry, are not included, viz. :—(a) A grant of £3,877 in lieu of recoupments of cost-of-living bonus for the year ended 31st March, 1926, and (b) Arrears amounting to £345 15s 10d in respect of cost-of-living bonus paid by County Committees up to 31st March, 1925.

*Table showing Expenditure on Agricultural and Live Stock Schemes by County Committees of Agriculture during the Year ended 31st March, 1926.

County	Itinerant Instruction in Agriculture	Winter Agricultural Classes	Horticulture and Bee-keeping	Poultry-keeping and Butter-making	Live Stock	Subsidies to Shows	Grants to Milk Recording Associations	Miscellaneous allocations	General Administration	Scholarships	TOTALS
	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d
Antrim	614 16 1	50 11 0	968 1 10	794 9 3	1,842 8 4	372 17 7	130 0 0	(a) 784 14 11	795 14 3	(b) 1,063 8 5	7,444 1 8
Armagh	709 17 8	(c) 118 14 2	957 4 9	769 13 1	835 5 9	156 4 10	40 0 0	—	566 3 0	323 15 0	4,476 18 3
Down	952 18 0	47 10 7	962 7 10	1,141 15 8	2,265 13 6	415 0 8	55 0 0	(d) 126 12 6	929 6 11	992 10 0	7,888 15 8
Fermanagh	(e) 901 15 8	19 8 2	295 13 0	750 11 11	910 11 4	125 8 5	80 0 0	(f) 291 18 3	602 16 6	177 0 0	4,155 3 3
L'donderry	631 12 2	22 15 11	447 18 10	783 15 6	924 15 8	147 6 6	30 0 0	—	673 4 8	284 17 6	3,946 6 9
Tyrone	1,252 8 8	99 7 7	473 15 10	642 16 0	1,771 2 0	212 13 11	87 10 0	—	813 1 11	336 17 6	5,689 13 5
Total	5090, 8 3	358 7 5	4,105 2 1	4,883 1 5	8,549 16 7	1,429 11 11	422 10 0	1,203 5 8	4,380 7 3	3,178 8 5	33,600 19 0

*The return for previous years excluded bonus of staff, which was directly repayable by the Ministry. As from 1st April, 1925, the bonus formerly payable is covered by new inclusive scales of salary, and the figures now shown include the total amounts paid by way of remuneration.

(a) (1) For Cottage and Farm Prizes ... £85 13 8
(2) For Agricultural Overseer ... 315 17 4
(3) For Seed Potato Scheme ... 383 3 11

(b) Includes £609 5s 11d upkeep of Greenmount Agricultural College.

(c) Includes £65 12s 0d for lectures in Veterinary Hygiene.

(d) For Cottage and Farm Prizes.

(e) The expenditure shown in respect of this County includes certain expenditure incurred in the financial year 1924-25, which was omitted from the statement for that year.

(f) (1) For Superannuation £187 10 0
(2) For Cottage and Farm Prizes ... 104 8 3

Table showing Expenditure on Special Development Schemes by County Committees of Agriculture during the period ended 31st March, 1926.

County.	Itinerant Instruction in Agriculture	Agricultural Overseers.	Improvement of Pastures.	(a) Improvement of Mountain Sheep.	Totals.
	£ s. d.	£ s d.	£ s d.	£ s d.	£ s. d.
Antrim	457 12 2	275 0 11	186 8 8	102 3 7	1,021 5 4
Armagh	—	232 8 4	37 7 3	—	269 15 7
Down	—	557 15 10	77 10 0	87 7 10	722 13 8
Fermanagh (b)	—	667 2 5	65 1 2	—	732 3 7
Londonderry	—	538 1 6	85 15 10	—	623 17 4
Tyrone	438 7 2	548 2 6	161 14 6	84 11 2	1,232 15 6
Total	895 19 4	2,818 11 8	613 17 5	274 2 7	4,602 11 0

(a) Net expenditure after deducting receipts from sale of rams.

(b) The expenditure shown in respect of this county includes certain expenditure incurred in the financial year 1924-25, which was omitted from the statement for that year.

Expenditure of Local Authorities (County Councils) under the Diseases of Animals Acts and the Orders passed thereunder, and the amounts recouped to Local Authorities as from the General Cattle Diseases (Northern Ireland) Fund and the Exchequer Grant (Tuberculosis in Cattle) during the nine months ended 30th September, 1926.

Districts of Local Authorities.	Expenditure of Local Authorities.			Amounts repaid to Local Authorities during the nine months ended 30/9/26 from the General Cattle Diseases (Northern Ireland) Fund.	* Amounts repaid to Local Authorities during the three months ended 31/3/26 from Exchequer Grant in respect of compensation for animals slaughtered under the Bovine Tuberculosis Order.
	Salaries and Allowances of Officers.	Other Expenses.	Total Expenditure.		
	£ s d	£ s d	£ s d	£ s d	£ s d
Co. Antrim	581 14 6	759 1 1	1,340 15 7	939 4 10	611 19 9
Co. Armagh	292 12 0	522 8 0	817 0 0	817 14 3	260 17 6
Co. Down	624 18 2	930 2 2	1,555 0 4	1,107 15 3	696 2 0
Co. Fermanagh	193 9 6	97 7 6	290 17 0	220 10 10	19 5 0
Co. Londonderry	365 8 1	418 17 7	784 5 8	519 1 2	63 8 1
Co. Tyrone	1,090 18 2	818 8 6	1,909 6 8	1,632 2 4	395 6 3
Co. Boro' of Belfast	275 5 9	106 13 9	381 19 6	122 15 5	12 3 1
Co. Boro' of Londonderry	86 5 0		86 5 0	43 2 6	—

*As from 1st April, 1926, the full amount of compensation paid by Local Authorities in respect of animals slaughtered under the Bovine Tuberculosis Order is recoupable from the General Cattle Diseases (Northern Ireland) Fund. Three-fourths of the compensation is repayable to the Fund from Parliamentary Vote.

GENERAL CATTLE DISEASES FUND FOR NORTHERN IRELAND (16 GEO. V., C. 4).

Account of Receipts and Payments in respect of the General and Special Accounts of the above Fund in the Six Months ended 30th September, 1926.

GENERAL ACCOUNT.

RECEIPTS.

	£	s	d
Balance on 1st April, 1926	3,884	14	6
Assessments on Local Authorities	2,593	13	3
Parliamentary Grant (Class VI., No. 2, Subhead C.4) ...	500	0	0
Proportion of Fines in Prosecutions under Diseases of Animals Acts	1	10	0
Bank Interest	9	9	5
	£6,949	7	6

PAYMENTS.

	£	s	d	£	s.	d
Recoupments to Local Authorities in respect of Compensation and Expenses under the Diseases of Animals Acts				1,217	15	7
Fees	—					
Travelling Expenses	—					
Miscellaneous Expenses	3	7	10	3	7	10
Balance on 30th September, 1926				5,728	4	1
				£6,949	7	6

SPECIAL ACCOUNT.

RECEIPTS.

	£	s	d
Balance on 1st April, 1926			
Parliamentary Grant (Class VI., No. 2, Subhead C.4)...	500	0	0
Salvage of animals slaughtered in connexion with :—			
(1) Pleuro-pneumonia	—		
(2) Swine fever	9	9	5
(3) Foot and mouth disease	—		
	9	9	5
	£509	9	5

PAYMENTS.

	£	s	d	£	s	d
Salaries of Staff	40	15	4			
Fees	—					
Travelling Expenses	113	16	1	154	11	5
Miscellaneous expenses, including cost of requisites for cleansing and disinfection and casual labour in killing, burying, branding and removal of animals, and other petty expenses :—						
(1) Pleuro-pneumonia	—					
(2) Swine fever	5	11	8			
(3) Foot and mouth disease	—			5	11	8
Compensation to owners of animals slaughtered in connexion with :—						
(1) Pleuro-pneumonia	—					
(2) Swine fever	309	17	6			
(3) Foot and mouth disease	—			309	17	6
Balance on 30th September, 1926				39	8	10
				£509	9	5

Agricultural Experiments, 1925-26. The Scheme of experiments which was carried out in 1924-25 was continued with the following alterations.

1. Discontinuance of Experiment. The experiment with phosphatic manures on turnips was discontinued.

2. New Experiments. *Oat Crop.* Rate of Seeding Test:
Size of each plot—not less than 1/16 statute acre.
Variety of oats—Potato, seed for all tests to be obtained from the same bulk lot so as to secure uniformity of germination.
Site for plots—Manured ground, preferably after turnips.

Plots.

Plot 1. Seeded at the rate of 8 stones per statute acre.
Plot 2. ,, ,, ,, ,, ,, 12 ,, ,, ,, ,,
Plot 3. ,, ,, ,, ,, ,, 16 ,, ,, ,, ,,

Results Required.

1. Yield of grain from each plot.
2. Yield of straw from each plot.
3. Date of ripening for each plot.
4. Freedom from weeds for each plot.
5. 1 lb. sample of grain from each plot to be forwarded to Ministry for determination of husk.

Ryegrass. To compare yield and quality of seed produced from crops grown from Irish and Scottish Perennial ryegrass seed.
Plots. Two plots each ¼ statute acre.
Treatment. Time of seeding and treatment of crop should be in accordance with the farmer's usual practice. The farm selected should be in a seed saving district.

Plot 1. 37 lb. Irish Perennial Ryegrass.
6 lb. Cocksfoot.
3 lb. Timothy.
2 lb. Late flowering Red Clover.
1 lb. Wild White Clover.
—
49 lb. per statute acre.

Plot 2. Same as for Plot 1 except that Scottish Perennial Ryegrass Seed will be substituted for Irish Seed.

Particulars required.
(a) Date of sowing.
(b) Exact particulars of manuring.
(c) Differences, if any, in dates of ripening.
(d) Weight of seed produced per statute acre. (Total weight of crop should also be determined if this can conveniently be done).
(e) Samples of seed not less than 1 lb. to be sent to the Seed Testing Division immediately after threshing.

Ryegrass.

To compare yield and quality of seed produced from crops grown from Irish, English and French Italian ryegrass.
Plots. Three plots each ¼ statute acre.
Treatment. No other grass or clover seeds to be sown. The seeding will be on the basis of 2 bushels per statute acre at 90% standard germination.
Plot 1. Irish Italian ryegrass.
Plot 2. English ,, ,,
Plot 3. French ,, ,,

Particulars required :—
(a) Date of sowing.
(b) Exact particulars of manuring.
(c) Differences, if any, in dates of ripening.
(d) Weight of seed produced per statute acre. (Total weight of crop should also be determined if this can conveniently be done).
(e) Samples of seed not less than 1 lb. to be sent to the Seed Testing Division immediately after threshing.

Manure.

To compare manure made by "Baby" Beef calves with that made by stores on same farm.

This test to be arranged at centres where "Baby" Beef experiments are being carried out.

No. of Plots. Two.

Size of Plots. Four drills at least forty yards long. Outside drills to be discarded when taking weighings.

Crop. Potatoes.

Treatment per statute acre Plot 1 (Stores) 15 tons farmyard manure from store calves and 4 cwt. standard mixture of artificials.

Plot 2. ("Baby" Beef) 15 tons farmyard manure from "Baby" Beef calves and 4 cwt. standard mixture of artificials.

3. *Minor Alterations.*

(a) Turnip variety test. The variety "Supreme" was omitted.

(b) Potato variety test. The variety "Arran Consul" was added.

Horticultural Experiments, 1925-26.

The scheme of experiments which was carried out in 1924-25 was continued with the following alterations :—

1. Discontinuance of Experiments.
   (a) The experiment with Fluid A as an ovicidal spray was discontinued.
   (b) Plots 2, 3, 4 and 7 of the experiment, testing certain sprays for the control of Apple Scab were omitted.
2. New Experiments. *Apple Scab (New Series).*

Object. To test various sprays which have given good results elsewhere in the control of apple scab. For this new series of experiments Bramley's seedling trees should be selected that were not sprayed for the control of apple scab during 1925.

Plot A. Control. No spray.

Plot B. Fluid B. The trees to be sprayed with a 5% solution before the end of February.

Plot C. Bordeaux mixture :

$2\frac{1}{4}$ lb. copper sulphate.
8 lb. freshly burned lime.
40 gallons water.

To be applied as a spray on three separate occasions (a) as soon as the petals show colour, but before they expand, (b) immediately after the petals have fallen, and (c) not earlier than two nor later than three weeks after the application of the second spray.

Plot D. Fluid B. as for Plot B. to be applied at the time specified for Plot B. and mixture as for Plot C. to be applied at the times specified for Plot C.

Plot E. Fluid B. as for Plot B. and Bordeaux mixture :

$2\frac{1}{4}$ lb. copper sulphate.
8 lb. freshly burned lime.
$\frac{1}{2}$ lb. glue.
40 gallons water.

The glue should be dissolved in about two gallons of warm water before being added to the Bordeaux mixture. The sprays to be applied at the times specified for Plot C.

Plot F. Fluid B. as in Plot B. and Burgundy mixture :

2 lb. copper sulphate.
$2\frac{1}{2}$ lb. washing soda.
40 gallons water.

The sprays to be applied at the times specified for Plot C.

Each plot should include not less than six trees; the trees should be from 10—15 years old and the spray should be applied as far as possible under uniform conditions. A plot may not consist entirely of trees in an outside row. If the trees of an outside row are to be included in the experiment, they should be distributed evenly throughout the plots. The cropping or manurial treatment of the soil on each plot should also be similar. For each plot the results of each tree are to be returned thus :—

(a) Weight of fruit free from scab.
(b) Weight of fruit affected by scab.
(c) Weight of fruit blemished otherwise than by scab.

Manuring Blackcurrants.—This experiment is optional. The object of the experiment is to test under other conditions and on different soils the results obtained in County Armagh on the manuring of blackcurrants.

Bushes to be not less than 4 years planted.

Number of bushes in each plot to be not less than 25.

Condition of bushes. Growing in cultivated ground.

Variety. The same variety, or the same number of bushes of each variety, should be selected for each plot; the bushes to be approximately equal in vigour and size.

Plot 1. No manure.

Plot 2. Farmyard manure at the rate of 45 lb. per bush.

Plot 3. 4 oz. Sulphate of ammonia. } per bush.
12 oz. Superphosphate. }

Plot 4. 8 oz. Sulphate of ammonia. } per bush.
12 oz. Superphosphate. }

The farmyard manure to be applied during the winter, the Superphosphate early in March, the Sulphate of Ammonia to be divided into two equal portions, one portion to be applied in early April and the other from 3 to 4 weeks later.

The experiment should be continued with the same bushes for at least four consecutive years.

Recording Results. Particulars of the weight of fruit from each plot to be ascertained each season.

Pig Feeding Experiments, 1925-26.

Object. To ascertain if pigs can be economically fattened in the open air.

Conditions. Three lots of pigs with a minimum of three pigs in each lot.

Lot 1: fed in house on a mixture of moistened uncooked meals.

Lot 2: fed on pasture in open on the same mixture of meals as for Lot 1, but brought in to house to be finished.

Lot 3: fed on pasture in open throughout the entire experimental period on the same mixture of meals as for Lot 1.

The moistened meal mixture may be fed to Lot 1 from an ordinary open trough, and as much as the pigs will readily clean up given at each feed. With Lots 2 and 3 the meal mixture should be fed dry from an automatic feeder and the quantity unrestricted. If potatoes are fed each lot should receive equal quantities. Lots 2 and 3 may be run and fed together as one lot until the pigs are within one month of the finishing stage, when the animals of Lot 2 should be transferred to a house where feeding on dry food from an automatic feeder should be continued until the experiment is concluded. If sufficient pigs from one litter cannot be secured the pigs may be selected from two or more litters of about the same age provided the same number of pigs from each of the litters is included in each of the three lots. The sexes should, if possible, be evenly balanced, and each pig should, at the beginning of the test, be marked with a distinguishing mark. Where pigs are taken from two or more litters a preliminary period of two weeks should precede the start of the experiment, during which time all the pigs should be run together. Pigs to be not more than twelve weeks old at the start of the experiment. An exact record to be kept of the live weights of pigs at beginning and end of test and of the foods consumed by each lot. The weight of the pig in Lots 2 and 3 should also be obtained when those in Lot 2 are brought indoors.

Meal Mixture:

3 parts by weight maize meal
2½ ,, ,, ,, barley meal.
2½ ,, ,, ,, palm nut meal.
2 ,, ,, ,, pollard.
Separated, skim or buttermilk, if available.

Subsidy: The subsidy payable shall not exceed 10/- per pig, with an allowance of 10/- to the attendant. The maximum subsidy for one experiment shall be £10.

MEMORANDUM.—Trapnesting at Poultry Stations.

CONDITIONS TO BE OBSERVED BY STATION-HOLDERS SELECTED TO KEEP TRAPNESTING STATIONS.

1. Pullets only to be trapnested.

2. Pullets under test to be unmated and to be kept separate from the remainder of the station stock during the period of the test. The house and run must be approved by the Instructor in Poultry-keeping.

3. All pullets to be marked with sealed and numbered rings at the beginning of the test period.

4. The number of pullets to be trapnested must be not less than twenty, and, in the case of stations on which more than forty birds are kept, the number must be not less than one-half of the total number contemplated to be kept on the station.

5. Trapnesting to commence not earlier than 1st October and not later than 1st November, and to continue for at least three months from date of commencement.

6. A minimum of one trap nest must be provided for every three birds. The type of trap nest proposed to be used must be approved by the Instructor.

7. Breed optional, but preference should be given in the following order, provided equally good station-holders are willing to undertake the work :—

White Wyandotte.
White Leghorn.
Rhode Island Red.
Light Sussex.

It is suggested where more than one trapnesting station is established in an Instructor's district that, if possible, different breeds be represented so that in subsequent years if reliable birds are required for other stations they may be available.

8. A careful record of the number of eggs laid by each pullet to be kept and to be available for inspection by the County Instructor in Poultry-keeping, the Secretary of the County Committee of Agriculture, and the Ministry's Inspectors at any time during the test. Every egg laid by each pullet must, at the time the pullet is untrapped, be marked with the ring number of that pullet. The number of eggs laid each day must be entered on the record sheet on the evening of the day they were laid.

9. The station-holder must provide a suitable weighing machine, and, at regular intervals, weigh the eggs laid by each pullet. At least one egg from each pullet must be weighed weekly and the weights entered in the record form in the spaces provided.

10. Only the best of the trapnested pullets, as judged both by the number and size of the eggs laid, should be transferred to the station flock, and such transfer should not be made until notice is first given to the Instructor in Poultry-keeping.

Where it is intended to transfer the selected pullets to the station stock before the end of the egg distribution season supplementary cockerels in adequate numbers must, if necessary, be provided. If, after the completion of the trapnesting period, the station-holder desires to keep the selected flock of pullets apart from the station flock the pullets may be mated in their trapnesting quarters or elsewhere as may be approved by the Instructor in Poultry-keeping. The separate flock of pullets may be regarded as part of the station flock for the purposes of the premium.

CIRCULAR No. 215.

GOVERNMENT OF NORTHERN IRELAND.

MINISTRY OF AGRICULTURE.

Lochar Potatoes.

The low price obtained for the 1925 crop of Lochar potatoes is a matter of great concern to farmers in most parts of the Scheduled District in County Down. The desirability of advising farmers not to plant this variety so extensively in 1926 has been discussed at representative meetings called by the Ministry, and the time appears to be opportune for bringing the subject to the notice of all the growers concerned.

It is well known that South Wales has been the chief market for Lochar potatoes, but the largest merchants in Newport, Swansea, and Cardiff have repeatedly informed the Ministry that they require potatoes of better quality than they have been receiving from County Down. The following is an extract from the most recent communication received from these merchants :—

> " We think it a foolish policy to allow your farmers to grow any more Lochars, as we experience more difficulty every year in disposing of same, and desire to give you notice that, next year, we will refuse to handle them except at a very low price. By persisting in the growing of this variety it is bringing all Irish potatoes into disrepute."

The opinions expressed by the South Wales merchants are confirmed by the buyers in County Down. At a meeting held recently a number of the principal merchants who export potatoes from the Scheduled District recommended the Ministry

> " To make known to farmers the increasing difficulty they are experiencing in finding sale for Lochar potatoes."

The merchants also stated that they were

> " Of opinion that farmers in Scheduled Districts should be advised to reduce this year the acreage under Lochar potatoes and to substitute new varieties as Arran Victory, Majestic, Great Scot, and Kerr's Pink.

In view of these opinions the Ministry would advise every grower in the Scheduled District in County Down to consider carefully whether he can substitute one or other of the varieties mentioned on at least portion of the area he has set apart for planting with Lochar potatoes this season.

This advice is offered in particular to farmers residing in the Ards peninsula and in the neighbourhood of Ardglass and Killough, where the proportion of Lochars grown varies from 8 to 9 acres out of every 10 acres under potatoes, but it should not be ignored in any part of the Scheduled District.

In this matter the interests of farmers and merchants are identical, and it is folly for farmers to continue to grow a variety such as Lochar for which markets can be found by merchants only at a price below that of other kinds.

Ministry of Agriculture,
25 Wellington Place,
Belfast.
March, 1926.

GOVERNMENT OF NORTHERN IRELAND.

MINISTRY OF AGRICULTURE.

Planting of Immune Varieties of Potatoes.

Since its inception the Ministry has consistently advocated the planting of varieties of potatoes immune from Black Scab Disease as the greatest safeguard for the Northern Ireland potato industry against the spread of the disease.

In spite of the most earnest endeavours to confine Black Scab Disease within the limits of those areas in Northern Ireland in which it had previously made its appearance the Ministry has, with regret, to draw attention to the fact that in both 1924 and 1925 fresh outbreaks of the disease have occurred and, as a result, the Ministry was obliged to schedule further areas.

The Ministry now advises every farmer in districts adjacent to scheduled areas to grow at least sufficient of such approved immune varieties as "Arran Comrade," "Great Scot," "Arran Victory," "Tinwald Perfection," and "Rhoderick Dhu" to provide himself with enough seed in the following year to plant his entire potato acreage with immune varieties should the spread of Black Scab Disease render it necessary to do so.

The importance of planting only immune seed in gardens and allotments cannot be too strongly urged, as it has been amply proved that the continued planting in such places of non-immune potatoes is one of the chief causes of the spread of Black Scab Disease.

For garden purposes such varieties as "Edzell Blue" and "Arran Comrade" for early use and "Arran Victory," "Kerr's Pink" and "Golden Wonder" for use in winter and spring can be safely recommended.

Experience has shown that Black Scab is found more frequently in crops of "Black Skerry" and "Arran Chief" than in other varieties. These two kinds should no longer be grown in either fields or gardens. For home use or for sale for local consumption they should be replaced by "Arran Victory" and "Kerr's Pink." Seed of these immune varieties should be purchased only from crops certified by the Ministry as pure and for which a certificate number can be quoted.

Copies of the list of such certified crops may be had on application to the Ministry.

The Agricultural Instructors and overseers employed in each county by the local Agricultural Committees will always be glad to afford full information and advice to farmers regarding the different immune varieties and as to potato culture generally.

Wellington Place, Belfast.
February, 1926.

Live Stock Breeding Act (Northern Ireland), 1922.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
29th April, 1926.

Sir,

The Ministry desires to direct your attention to the following new requirements in connection with the licensing of bulls under the above-mentioned Act :—

I. TYPES OF BULLS THAT WILL BE REJECTED.

Licences will not in future be granted in respect of bulls of the following types :—

(a) Non-pedigree Hereford, British Friesian, Ayrshire, Jersey, Dexter and Kerry bulls.
(b) Blue-grey bulls and black bulls with horns,

II. Types of Bulls to be Licensed.

The following types of bulls will be licensed if of good conformation and appearance :—

(a) Pedigree bulls of all breeds;
(b) Non-pedigree bulls of good Shorthorn type and character;
(c) Non-pedigree bulls of Aberdeen Angus, Red Poll and Galloway Breed which are in character and appearance truly typical of their breed, and in respect of which there is evidence of two or more crosses of pedigree blood.

III. Prescribed Ages of Bulls.

Bulls born in January, February, March, April, May and June in any year will be of the prescribed age on the 31st March in the year following date of birth.

Bulls born in July, August, September, October, November and December in any year will be of the prescribed age on the 30th September in the year following date of birth.

IV. Applications for Licences.

Applications for licences in respect of bulls born in January, February, March, April, May and June in any year must be lodged with the Ministry on the prescribed form not later than 31st January in the year following date of birth.

Applications for licences in respect of bulls born in July, August, September, October, November and December in any year must be lodged with the Ministry on the prescribed form not later than 31st July in the year following date of birth.

V. Bulls Exported from Northern Ireland to the Irish Free State and Vice Versa.

The Ministry has come to an understanding with the Department of Lands and Agriculture, Dublin, whereby all bulls licensed in the north will also be licensed in the south, and, similarly, all bulls rejected in the north will be rejected in the south and *vice versa*.

It should be clearly understood, however, that application for a licence (accompanied by the usual fee of 5/-) in respect of a licensed bull imported from the Irish Free State to stand in Northern Ireland must be lodged with the Ministry immediately after the arrival of the animal in Northern Ireland.

The above changes will come into force as from the next general inspections of bulls to be held in August, 1926.

The Ministry will esteem it a favour if your Association will be so good as to give as wide publicity as possible to the above-mentioned requirements.

A supply of handbills is being sent to you under separate cover, and the Ministry will be much obliged if you will kindly distribute them amongst the members of your Association.

I am, Sir,
Your obedient servant,
JAMES S. GORDON,
Secretary.

Person or Organisation named in the Address.